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A Glance at the Contents—

Eastern Counties Gas Managers' Association.

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International Coal Carbonization.

Dr. J. G. King, Chief Engineer at the Fuel Research Station, reviews this book by John Roberts and Adolf Jenkner. [p. 375.]

South Metropolitan Gas Company's Ambulance Tests.

Ambulance teams, from eight of the South Metropolitan Gas Company's stations, competed for the Good Samaritan Trophy. [p. 381.]

A Plea for Balanced Effort.

In his Presidential Address to the Eastern Counties Gas Managers' Association Mr. F. G. Brockway, of Cleethorpes, stressed the need for balanced effort in the running of a gas undertaking. [p. 395.]

Benzole Plant Inaugurated at Stoke-on-Trent.

Among the most important developments in the various undertakings of the Stoke-on-Trent City Corporation in recent years is the provision of the benzole recovery plant at the Etruria Works of the City Gas Department, which was formally inaugurated on May 1. [p. 382.]

Sheffield Gas Company's Bill.

The proceedings are reported of the Sheffield Gas Company's Bill before the House of Lords Committee in connection with the South Yorkshire gas grid scheme. [p. 403.]

National Gas Council.

The Sixteenth Annual Meeting and Luncheon of the National Gas Council was held at the Hotel Metropole, London, on May 8—Sir David Milne-Watson, the President, in the chair. [p. 383.]

Society of British Gas Industries.

The Annual Meeting of the Society of British Gas Industries was held at the Hotel Metropole, London, on Wednesday, May 9—the Rt. Hon. Earl Fitzwilliam, K.C.V.O., the President, in the chair. [p. 387.]

Proposed Extension of Bournemouth Area.

An Extraordinary General Meeting of the Bournemouth Gas and Water Company was held on May 11 to approve a Draft Order to be presented to the Board of Trade to enable the Company to take over the Ringwood Gas Light and Coke Company, Ltd., and the Lymington Gas and Coke Company, Ltd. [p. 402.]

Forthcoming Engagements

May 16.—B.C.G.A.—Meeting of Executive Committee, 12 noon.

May 17.—MIDLAND ASSOCIATION.—Spring General Meeting at Leamington.

May 17.—WALES AND MONMOUTHSHIRE ASSOCIATION.—General Meeting at Cardiff.

May 25.—SOUTHERN ASSOCIATION.—Visit to Watson House and Fulham Stove Shops of the Gas Light and Coke Company.

June 5-8.—I.G.E.—Annual General Meeting, London.

June 14.—S.B.G.I.—Council Meeting, 11.15 a.m.

June 29.—WAVERLEY ASSOCIATION OF GAS MANAGERS.—Annual Meeting in Edinburgh.

Sept. 6.—NORTH BRITISH ASSOCIATION OF GAS MANAGERS.—Annual Meeting in Inverness.

EDITORIAL NOTES

The Stragglers

IN his speech as President of the National Gas Council last week, Sir David Milne-Watson declared himself to be in optimistic vein. The import tax on heavy hydrocarbon oils and the preferential duty on home-produced light hydrocarbon oils are points in favour; the Gas Undertakings Bill is something, if not all; co-ordinating efforts among the national bodies are already having a beneficial effect; and competition, even if in many cases of an unfair nature, is doing us all a " power of good." Above all, the Gas Industry is bound to profit by the return of national prosperity. But—and it is a very important " but "—one must not infer that business will come to us of its own accord.

On this subject Sir David had a good deal to say with which most will heartily agree. But what is to be done with the laggards who remain; those who, while they have a load are satisfied to keep it; who, if they are not being actually hard pressed by competition, are taking no active steps to prepare for the day when they will be? They are indeed a problem to the Industry in general, because, although the active majority know where to place them, their effect on the whole picture is the best possible encouragement to those who are anxious to prove that the days of gas are numbered. Unhappily we fear that an appeal to them on these lines of unselfishness will continue to leave them unmoved, and in some cases it will probably be only the sudden realization that shareholders are going to lose their money, or managers their jobs, that will spur them to an attempt at activity, which will most likely be too late.

The Enamel Age

THE stocktaking which Sir David urges concerns first of all appliances falling short of the standards required in a quickly changing world. Unsoundly, perhaps, but inevitably all the same, the falling short concerns appearances as much as, if not more than, efficiencies in this " enamel age." Unfortunate for the Gas Industry perhaps, but it is no use arguing, and very little use standing by with a black cooker until the electrician comes along with his enamelled one. When he arrives he must find a " pretty " gas cooker already in position, so let us not ask ourselves whether we are going to replace our black cookers. Let those who have them set out straightaway to solve the problem *how* they are going to effect the change. An interchange of ideas will be most helpful. We heard recently, for example, of an undertaking which, by way of experiment, had in a few cases replaced hotplates with new all-enamel ones, and sprayed the rest of the cooker. The trial so far is working well, and there must be many such expedients of which experience is now available from those who grappled with the problems of the enamel age from the beginning.

It is impossible too strongly to deprecate the attitude of those who continue to sit still and command the waves to recede. We see no object, for example, but rather a waste of effort, in the suggestion which crops up from time to time for an eat-less-tinned-food campaign. The movement to get out into the fresh air is healthy, reasonable, strong, and growing. Those who get out will continue to eat and enjoy canned food in spite of anything we can do, and they will cook fewer joints on Sunday. Let us therefore concentrate on holding the cooking consumers we have and roping in the barbarians who still use raw coal, by means of good looking, thermostatically controlled cookers—though even here we should hesitate to share to the full Sir David's optimism that in thermostatic control we have a device which cannot be copied by our competitors. And then let us see that gas is used in every food canning process possible, and further be thankful that the modern " pernicketiness " of which Sir David speaks extends very largely to cleanliness, and that consequently there is a huge water heating load to be had. We shall gain nothing by refusing to accept the standards of a quickly changing world, whether it be in respect of enamelled cookers or tinned food.

The Development Centres

WE may grant that the cost factor is a difficulty—albeit one that must be overcome—in the replacement of obsolescent and ugly appliances, but what are we to say for those who still stand aloof " in considerable numbers " from the Development Centre scheme? It is difficult to understand their mentality or to guess at their reasons. It cannot be cost in this case which keeps them out. Surely, too, no undertaking can feel that there is no possibility of its gaining anything from a pool of knowledge. But if it does feel that way, could it not, for its own sake, try itself to contribute something to the pool, because the efficiency of the whole Industry must be of direct benefit to each individual? It is to be presumed that the whole scheme has been made quite clear to everybody; that, for example, an undertaking which thinks it has no earthly chance of any industrial load need not for that reason alone stand outside. Beyond this we can think only of personal canvass for further advance. Those who believe that the scheme is for the good of the Industry must lose no opportunity of persuading those who at present do not, or who perhaps have not yet even given it a great deal of thought.

Amalgamations

THE case of the non-amalgamators, to whom Sir David also referred, is more easily understood. It is almost safe to say that in no branch of commerce, however strong reason there may have appeared from outside, have small enterprises run together spontaneously to form groups. The colliery industry is the outstanding example of this, where amalgamations are clearly needed, where the way has been made smooth for them, and where neither hints, cajoling, threats, nor even legislative compulsion have yet succeeded in achieving much. The reason is not far to seek, and it is easy to understand quite sympathetically. In an amalgamation somebody nearly always has to go, or at any rate become submerged, so that quite naturally the impulse seldom comes from within.

None the less, Sir David's appeal, even if it continues to meet with meagre response, is fully justified, and in our opinion the grouping movement is proceeding reasonably satisfactorily. While those who understand the requirements of the Gas Industry continue to sponsor groups for which there is a real practical reason—and wherever possible with a solid, go ahead undertaking about which to gather in the others—we have no complaint. We know that those who have the best interests of the Industry at heart are alive to the futility of grouping just for the sake of grouping, and above all to the danger of the intrusion of undesirable financial interests.

A Public Obligation

THE citizens of this country choose from time to time those by whom they wish to be governed, and thereafter for a period have little say in the matter. They rely upon those whom they elect to decide, among other things, what funds are required to carry on the country; they grumble heartily, but they pay all the same, realizing in their heart of hearts that even a Chancellor of the Exchequer does not want to tax them more than is necessary.

We believe that in much the same spirit the Gas Industry will answer the call which is being made for increased subscriptions to the National Bodies, which the Executives of all three have unanimously decided are essential to their working to the best effect. Much has been done in the past year towards co-ordinating the efforts of the central organizations, and where criticism has been thought necessary it has been fearlessly made and listened to. We believe, therefore, that those who would have hesitated will think again and come to the conclusion that ten shillings may easily give them what seven-and-sixpence never could. On the question of the National Gas Council Report, upon which the subject was raised, there can surely be no two opinions. It so obviously is value for money.

When we refer to the report of the Annual Meeting of the Council on later pages of this issue and appreciate the strength of the district representation, we find it difficult to understand the complaint which we sometimes hear that the Council is an institution run by London for Londoners. If the headquarters are not to be in London, where should they be? And if the district representatives cannot look after their own particular interests —well, we are surprised. One point we must emphasize in connection with the raising of the subscription. The funds are not required for an attack on the electrical industry or any other. Huge sums are at the disposal of our competitors for spreading the use of electricity. Those of us who believe that the Gas Industry has still a great part to play in the national life must support our views. It is true that we have to defend our business to some extent, and this is best done by spreading knowledge of the service which gas can perform, and of modern methods by which it can be made to perform it. This is surely no attack, but rather a public obligation.

The Pioneer Spirit

SOME meetings " go "; others just jog along in routine fashion, but leave little impression and give no inspiration. The Cleethorpes Meeting last week of the Eastern Counties Association was definitely a goer, and the members departed after it full of enthusiasm, and with enhanced esteem for their President, to whose personality the success was undoubtedly mainly due.

The enthusiasm which Mr. Brockway has for his work, and his alertness of mind, are shown by the Address he delivered. While truly appraising the value of close attention to detail in the efficient running of a gas-works, he has not allowed this detail to swamp his imagination and blur his vision. He attends to the present and looks ahead, and his address is typical of a man who thinks and acts, then thinks again. The pioneer spirit has been and remains much in evidence at Cleethorpes, and those of us who visited the President's works with the Association last week know them to be a model of their kind. Perhaps this is largely because the staff and workmen there have been infected by the enthusiasm and awareness of their Chief. Constant vigilance, insistent attention to small details; the result a works of which an engineer and manager may well be proud.

We have spoken of the pioneer spirit at Cleethorpes. Mr. Brockway sums this up admirably by mentioning that as recently as 1928 horizontal retorts, intermittent verticals, steamed continuous verticals, and blue water gas plant were at work simultaneously. And in view of this it is interesting that the sole carbonizing plant now in operation is steamed continuous verticals. Again, waterless holders were not numerous in this country when it was decided to erect one at Cleethorpes in 1929—a decision which has not been regretted. In connection with this holder Mr. Brockway includes in his address useful information on the sealing-tar. We come to the present to find that a tar plant possessing unusual features is in course of erection " as an essential step towards higher over-all efficiency and better service to the locality."

The Dog-Fight

" BETTER service." It is, as Mr. Brockway observes, a good thing for our Industry that so many of those formerly responsible for its welfare put forward such efforts to perfect their processes, and adopted ideals of public service, long before the sting of State-aided aggression. It is to be regretted that these efforts were not universal, and that even to-day there are instances of those who should know a great deal better waiting for the onslaught of electricity before attempting to put their house in order. Public opinion is fickle enough, but the public does remember bad service and is quite rightly sceptical of gas salesmanship borne solely out of electrical competition. We believe that competition has benefited the Gas Industry and consequently the millions of gas consumers. Mr. Brockway thinks the day will come when the public will " call the dog-fight off; " but can it be decided impartially with any satisfaction which exactly is the sphere for gas, which exactly the sphere for electricity, and would not absence of competition in effect mean a return to the bad old days of monopoly? Some waste might be eliminated, but it would, we suggest, be at the price of progress and endeavour, for monopoly is the reverse of inspiring. If we took a period of the Gas Industry's history before competition and compared it with a like period when competition was rife, we should find two very different pictures, two very different records of progress; and as a gas consumer we should look askance at a return to an arbitrarily determined monopoly. All the while we are urging the principle of " freedom of choice." Perhaps we are looking at the " dog-fight " from a different angle from that of Mr. Brockway, but it seems to us that two sources of energy competing for the same market must advertise and in many other ways put forward their claims to the public. We cannot see the *public* taking up the fight yet awhile.

Mr. Brockway's address is commendably brief; perhaps this is why it contains so many ideas of importance. We are sure Mr. Brockway is right in suggesting that the time is fast approaching when what he terms the managerial " faddist "—the man who runs his undertaking virtually from one angle—will be no more. In our view he *must* be no more. " Faddists " certainly do not accelerate the Industry's progress. Concentration on the retort house at the expense of the distribution department, or *vice versa*, or on the commercial side at the expense of both, is a policy which will have to go. We want concentration on every aspect, but properly co-ordinated; we need " a clear recognition by Boards and Committees of the vital importance of balanced effort." We are nearing the time, too, when smaller undertakings will, for their own security, have to break down any self-imposed barriers they may have erected and face their destinies not in glorious isolation but by calling-in the assistance of retort house specialists, distribution specialists, training specialists, commercial experts—in other words, the help of larger neighbours. More co-ordination and regional planning—without losing the personal contact which means so much to the success of any gas undertaking—is necessary. It is in this way that Mr. Brockway's aim of " balanced effort " will be achieved.

Coke Sizes—An Urgent Need

A FINAL word on Mr. Brockway's address, to call attention to his modified coke screening plant which is " practically automatic " and can be guaranteed to produce a de-dusted fuel in three sizes—$\frac{1}{2}$ in. to $1\frac{1}{4}$ in., $1\frac{1}{4}$ in. to $2\frac{1}{2}$ in., and " large lumps." In these columns last week we once again emphasized the need for arriving at a national nomenclature for coke sizes, and we set out the

standard coke nomenclature which we put forward in 1930 and also the grading standard for coke in use by the London and Counties Coke Association. We mentioned, too, that at the first meeting of the newly formed Coke Salesmen's Circle, when discussion took place on the confusion which arises owing to various undertakings having local designations for different sizes of fuel, it was urged that the designations of the London and Counties Coke Association should be generally adopted. This matter must be settled. None of Mr. Brockway's gradings agrees with those adopted by the Association; two of his three gradings agree with our own suggestion in 1930. We do not draw any inference from this, for it may be pure coincidence. We do, however, feel called upon to repeat what we said last week: "Many readers may think our nomenclature has advantages over the grading standard of the London and Counties Coke Association; but we should prefer to have the latter as a national standard rather than no generally accepted standard as at present."

"Aunty's" Advice

In the "Journal" last week we called attention to a letter by "R. C. H.," of Lancashire, published in the *Colliery Guardian*. His point was that domestic coal must be so reduced in price that householders will not think twice about either gas or electric fires. "To do this economically," he said, "obviously the coal-owner must get the difference from the producer of electricity and gas, as the industrial consumer cannot stand a higher price." And he suggested an immediate reduction of 10s. per ton on all good house coal "as a beginning." We expressed the opinion that "R. C. H." is an extremist, but emphasized that the Gas Industry must be continually on its guard against the policy which inspires him.

How true this is will be gathered if we quote a few sentences from "Aunty Gaslec," of Yorkshire, who, in the *Colliery Guardian*, says how refreshing it is at last to find someone (*i.e.*, "R. C. H.") who "has the courage to put into words what has existed in an embryo state in all our minds over recent years." "Aunty" is no quibbler, as will be seen from the following: "Charge 10s. per ton more for all gas and electricity coals *at once* and cheapen house coal proportionately. The public will soon respond and the house-coal sales decline will be stopped. How can British coal-owners who are definitely assured of all the gas and electricity business be so foolish as to miss this assured profit and at the same time let their valuable and high-priced house coal business be filched from them."

Ten shillings a ton more for gas coals and for the coal used for generating electricity? No, Sir; the public would not stand for it. The reason for the decline in house-coal sales is not just a question of price, but because the public appreciate all the conveniences of refined forms of energy—gas and electricity—and rightly regard coal as a dirty, old-fashioned source of heat, and its use in the raw state as sheer national extravagance. If the coal-owners are under the impression that if house-coal were reduced by 10s. a ton the public would return to raw coal, with all its filth and labour, for cooking and water heating, they are sadly mistaken. *The raw coal business simply is not there*, and the coal industry, instead of dropping back a generation, will have to face up to modern conditions. There are millions of gas cookers, fires, and water heaters installed, and the number is increasing—more rapidly during the past six months than during any period in the Gas Industry's history. If the millions of satisfied consumers using these appliances and coke boilers were faced with the prospect of the increase in cost of gas and coke necessitated by an increase in the price of gas coals of 10s. a ton, they would want to know something about it. Having been told the reason, they would not bear the coal industry much good will. The appearance of the coal salesman would not be the signal for a friendly chat. And what would the Electricity Commissioners have to say about an increase of 10s. in the price of coal they burn?

As it is, the Gas Industry enjoys no free market in coal, as regards either quantity or price; and its voice will certainly be heard should the coal industry attempt to adopt "Aunty's" advice.

A Responsible Suggestion

In the foregoing we have commented on anonymous correspondence—a practice in which we seldom indulge but which in this instance is warranted. The figure of 10s. extra on gas coal is, of course, fantastic; but it has quite recently been suggested in responsible quarters that a shilling or so extra per ton would mean nothing to the Gas Industry, which would almost unnoticeably be able to pass it on to its consumers. It is argued that a shilling extra would amount to 0·2d. per 1,000 c.ft. and that even if this figure were doubled the effect would be negligible. The immediate answer to this is that a shilling or so per ton means, to an Industry carbonizing 17 million tons a year, a matter of £1,000,000; and the idea that to an Industry facing keen and growing competition this is a mere bagatelle is nonsense.

No curious mathematical calculation can minimize the handicap which would be imposed on gas sales by the imposition of £1,000,000 on the purchase of the Industry's raw material. It would be difficult to find an industry which has placed such a premium on service to the consumer as has the Gas Industry; and in this connection we may mention that a sum of 0·4d. per 1,000 c.ft. will cover a comprehensive and efficient maintenance scheme which is of such advantage to the consumer. An addition of a like amount on the cost of coal would greatly hinder the abilities of the Industry to offer such service. Again, the market for residual products is very different from what obtained before the war; and whereas comparatively recently sulphate of ammonia was a revenue earner it is now a drag on practically every undertaking. The point is that that all-important figure net cost of coal has increased, and is increasing, and to-day it is infinitely more difficult to balance-up any addition to the gross cost of coal.

Looking to the Future

"To the coal industry we appeal, not in vain, I hope, for an even cleaner coal, so that we may place upon the domestic market a fuel which will be readily and willingly accepted into every household as a desirable requisite from all points of view. . . ." This is from the Presidential Address of Earl Fitzwilliam to the Society of British Gas Industries last week—an address which touches upon points of vital interest to our Industry. Readers know our views on clean coal and clean coke—that the place for cleaning coal is at the pithead, which reduces transport of inert material; that clean coal is tantamount to an increase in the carbonizing capacity of any type of plant and in its life; and that coke of uniformly low ash content will solve many of the problems of its sale. But we do not agree with Earl Fitzwilliam that the Gas Industry in general is unprepared to pay more for coal which, cleaned, has so many advantages over uncleaned coal. In all the ash content clauses of which we are aware the gas undertaking is prepared to pay more for its coal if the ash content is below the agreed datum, just as it expects to pay less if the ash content is above the datum. And the coal industry really owes a great deal to the appeal of the gas undertakings to be supplied with cleaned coal. The insistent demand has done them a power of good, and certain collieries are now fulfilling contracts which undoubtedly would have been placed elsewhere if they had not installed cleaning plants. If there are gas undertakings who think that clean coal is not worth more than uncleaned coal, then we suggest they are making a big mistake and looking at the matter short-sightedly. We have advocated in these columns greater attention to the subject of total elimination of sulphur compounds from town gas. Clean coal does play some part in this, if not a very great one; it also has a beneficial influence on the amount of sulphur left in the coke, and it is obviously desirable that the burning of this smokeless fuel should result in a minimum of atmospheric pollution.

If we read Earl Fitzwilliam's ideas aright, he would

see the Gas Industry a distributing industry rather than a manufacturing one. Progress is being made in this direction. Early progress was slow, recent progress rapid, but, presumably, not rapid enough to satisfy Earl Fitzwilliam. Anyhow, in 1921, fourteen undertakings bought 1,325 million c.ft. of coke oven gas. By 1932, this figure had been increased to 15,441 millions. This is from the latest Board of Trade Return, and the present purchase of coke oven gas is much greater. The whole question is uppermost in the minds of gas executives, and it is well realized that in certain districts purchase from a grid fed with coke oven gas and distribution of this gas by existing gas undertakings might be a good plan. The only grid at present in operation is in South Yorkshire, and progress is marking the efforts of those concerned. That the progress is not entirely smooth will be gathered from our report of the Sheffield Gas Company's Bill which is before a Committee of the House of Lords and is opposed, among others, by United Steel Companies, Ltd. It is impossible for us to comment on this, for the matter is *sub-judice;* but our readers ought not to miss our report.

It would also appear that Earl Fitzwilliam visualizes a Gas Industry taking its gas from carbonizing plants—perhaps modified coke ovens catering for the smokeless fuel market and supplying surplus gas at 600 B.Th.U. per c.ft. —situated at the pithead. In some areas this might be feasible, but continuity of supply would be the essence of the scheme, which would necessitate stand-by plant at gas-works. There is far too much generalization in most discussions on utilizing surplus gas from coke ovens. In certain areas it is obviously desirable, but there comes a point where distribution of gas over a distance is less economical than transporting the raw material, coal, and distributing the gas locally. To our mind the best place for the coke ovens is, in general, at the iron and steel works. This is borne out by recent developments which have effected great economies in the manufacture of steel. The coke is available for the blast furnaces; blast furnace gas is available for heating the ovens, and blast furnace gas and coke oven gas are available for heating the various furnaces. When all the requirements of the steel works for coke oven gas have been met there may, in efficient practice, be a small quantity of coke oven gas available for distribution, and the Gas Industry would be well advised to consider its purchase very closely, and the vendors well advised to bear in mind constantly in all negotiations the obligations of the gas undertakings to supply consumers unfailingly. Lack of appreciation of this factor has resulted in much unnecessary friction and a sense of grievance, not justified, on the part of the coke oven industry.

It is plain from the address that Earl Fitzwilliam has little doubt that if the collieries entered the smokeless fuel market the prices of the types of slacks and coal they would carbonize, either in modified coke ovens or by some low-temperature process, would not remain at the present figure. Readers would do well to mark his words in this connection. Finally, we emphasize that any such scheme should seek success via the Gas Industry, already possessed of the necessary distribution and marketing organization for both gaseous and solid products.

The B.I.F. Decision

THE very hot days which nearly the whole country enjoyed last week were a timely reminder of the risk of holding a gas exhibition in May, though actually they did not occur until after the Gas Section Committee had inspected the available accommodation in next year's London Section at Olympia, and decided without hesitation that it was quite unsuitable. It was therefore decided not to continue with the Gas Industries Section either in London or in Birmingham.

We realize that this decision will disappoint some, who had taken the vew that a continuance of organized participation was called for in the interests of the Gas Industry's prestige. We consider, however, that this is a case where no bread at all is better than half the loaf, and in view of the acknowledged difficulty of organizing a successful exhibit in Birmingham in May, and of the total unsuitability of the accommodation offered in London, it is better to abandon the whole project than take the risk of a show which would not enhance the Industry's prestige.

We believe that the unanimous endorsement of the Committee's decision by the Council of the Society of British Gas Industries represents the Council's sincere and considered view of what is in the best interests of the Industry, and that it will receive the loyal support of the members. We do not think that the Council consider the funds which have been spent annually on the B.I.F. as being withdrawn in future from application to the general welfare of the Industry. It is their view that they can be applied to better purpose, and we believe that any project in the future of which they approve will have their support and that of their members.

PERSONAL

RETIREMENT OF MR. F. C. TAYLOR.

After 53 years of whole-hearted service Mr. F. C. Taylor, Engineer, Manager, and Secretary of the Shanklin and Ventnor Gas Company, has handed over the reins to a younger man, Mr. Leslie Payne.

Mr. Taylor's retirement took effect on April 30, when an interesting presentation was made. Mr. W. T. Deeks, Chairman of Directors, presented Mr. Taylor with a handsome silver bowl of unusual design and workmanship. Making the presentation on behalf of the Company Directors (who were all present) Mr. Deeks said that Mr. Taylor had been mainly responsible for guiding the Shanklin gas undertaking into sturdy manhood, and its possibilities were never greater than at the present moment. It was with the assurance of good will and high regard that the Directors asked his acceptance of their gift.

The other Directors, Messrs. W. Russell, F. W. Taylor, and V. G. Middleton, also made brief speeches, appreciative of Mr. Taylor's loyalty to the Company, and Mr. Taylor made suitable reply.

The inscription on the vase is as follows: "Presented by the Directors of the Shanklin and Ventnor Gas Company to F. C. Taylor, Esq., on his retirement, as a token of their esteem. April 30th, 1934."

Another gift is from the staff and employees of the Company. This gift is a silver inkstand, bearing the following inscription: "Presented to F. C. Taylor, Esq., on his retirement. 30th April, 1934, by the Staff and Employees of the Shanklin and Ventnor Gas Company."

This mark of esteem was not presented in the usual manner but was found by Mr. Taylor on his desk when he arrived at the Offices. With the gift was the following letter: "It is very difficult suitably to express our feelings to you to-day, but I have been requested to make this little presentation to you on behalf of the whole of the staff and employees as a token of the great esteem with which you are held by us all. We should also like this gift to be an assurance to you that we shall all continue to strive for the continued success of the Company which you have done so much to achieve. In conclusion we trust that you will have many more years of good health to enjoy your well-earned retirement."

The letter was signed by Mr. Leslie Payne, the new Manager, who took over his duties on May 1.

When he took over the gas made totalled some 5 million c.ft.; last year it was about 114 millions.

* * *

Sir FRANCIS GOODENOUGH has had to cancel his engagements for some time to come as, since the meetings of the B.C.G.A. in mid-April, he has been suffering from an attack of septic inflammation of the kidneys.

He is, we are pleased to learn, making steady progress towards recovery.

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Mr. CHARLES FRANCIS TETLEY, M.A., LL.D., J.P., the late Chairman of the Leeds Corporation Gas Department, who died on Jan. 25 of this year, left estate of the value of £564,582 gross, with a net personalty of £532,979, on which estate duty amounting to £193,370 has been paid.

TORQUAY'S NEW GAS ENGINEER.

Mr. R. C. Taylor, B.Sc. (Gas Eng.), A.M.I.Mech.E., who for the past four years has held the position of Chief Assistant Engineer to the Portsmouth Gas Company, will shortly be leaving that City to take up the more important position of Engineer and Manager of the Torquay and Paignton Gas Company, for which he was selected from nearly 100 applicants.

Mr. Taylor was educated at Leeds and, after graduating at the University there in 1922 in the Faculty of Gas Engineering under Prof. Cobb, he was appointed Assistant Engineer to the Bridlington Gas Company. From there he

[*Photo. by Humphries, Portsmouth.*

secured a similar position with the Singapore Municipal Gas Undertaking, and served abroad for five years until going to Portsmouth in 1930, where he succeeded Mr. S. E. Whitehead, B.Sc., upon the latter's appointment as Engineer and General Manager of the Southampton Gaslight and Coke Company. Both Mr. Whitehead and Mr. Taylor acted as Chief Assistant to Mr. Thomas Carmichael, M.Inst.C.E., the Engineer and General Manager of the Portsmouth Gas Company.

* * *

The current issue of the *Co-Partnership Journal* of the South Metropolitan Gas Company gives a biographical note of Mr. FRANCIS GEORGE BREWER who was recently appointed Secretary of the Company. Previous to his appointment Mr. Brewer was with *The Times*, of which he was the Editorial Secretary. He was educated at the City of London School and at Gonville and Caius College, Cambridge, where he was Senior Classical Scholar and graduated in the First Division of the First Class of the Classical Tripos. During the War he served with the Inns of Court O.T.C. and the Royal Artillery.

After demobilization Mr. Brewer was for a short time in the Secretaries' Office of the Board of Inland Revenue. In the autumn of 1919 he was appointed to the staff of *The Times*, which, in addition to his editorial and secretarial duties, he has represented as special correspondent on tours at home and abroad.

* * *

Miss Mary Hailwood, daughter of Mr. E. A. HAILWOOD, Managing Director of Messrs. Hailwood & Ackroyd, Ltd., of Morley, is achieving further success as an artist.

In 1931 Miss Hailwood had a portrait of her sister, Miss Muriel Hailwood, accepted by the Royal Academy. The portrait depicted Miss Hailwood in hunting kit, and was the subject of very favourable comment. This year a further portrait (tempera) by Miss Hailwood, of her sister, has been accepted by the Société des Artistes Français, and is at the moment showing at the "Salon de 1934" in the Champs Elysées Palace—the French equivalent of the English Royal Academy.

Also at the present moment two of Miss Hailwood's paintings are among the fine collection at the Spring Exhibition at the Cartwright Memorial Hall, Lister Park, Bradford. They are "The Shoppers"—a title which speaks for the subject—and "Racing," taken from a view at Wetherby racecourse. Both are oil paintings, are interesting in treatment, and have been highly praised. A further picture by Miss Hailwood was recently accepted for the Yorkshire Artists' Exhibition at Leeds.

* * *

At a Dinner given by Mr. E. L. BURTON, the retiring Chairman of the Broadstairs Gas Company, to employees of the Company, held at the Granville Hotel on Friday, May 4, a presentation was made to him of a silver salver. It was inscribed as follows:

"Presented to Ernest Lionel Burton, Esq., by the employees of the Broadstairs Gas Company, May 4, 1934, as a token of their appreciation and thanks for his unfailing interest in their welfare throughout his Chairmanship, 1919-33. *FAMA SEMPER VIVAT.*"

* * *

The War Office announces that Lieutenant-Colonel and Brevet Colonel W. MONCRIEFF CARR, T.D. (Vice-President of the Institution of Gas Engineers), has been appointed Honorary Colonel of the 55th (West Lancashire) Divisional Engineers, Royal Engineers, Territorial Army, with effect from April 28, 1934.

OBITUARY

R. J. H. SAYERS.

We regret to announce the death, at the age of 74 years, of Mr. Ricardo J. H. Sayers, M.I.Mech.E., M.Inst.Gas E., who retired from the position of London Manager of Messrs. West's Gas Improvement Company, Ltd., in January, 1932, after a period of 53 years in the service of the Company. A pupil of Mr. Stephen Holman, M.Inst.C.E., inventor of the well-known retort mouthpiece eccentric fastener, Mr. Sayers entered the service of West's Gas Improvement Company in 1878, was appointed Chief Draughtsman and Secretary in 1880, and promoted to the position of Engineer to the Company in 1884, retaining this position until 1919 when he became London Manager.

Mr. Sayers was one of the few remaining officials of the Company who went from Maidstone to Manchester with Mr. John West in 1884. He was closely associated with the design and development of the West stoking machinery, particularly in its transition from hand to power operation, and as an engineer Mr. Sayers' name will be remem-

[*Portrait by Lafayette, Manchester.*

bered in connection with the origin and development of a good deal of the machinery now used in the handling of coal and coke. In those early days the principle of interchangeability in engineering practice was a new thing, and Mr. Sayers rendered invaluable service in the organization of the present system of manufacturing to accurate drawings, gauges, and records, exhibiting a wonderful mastery of detail and an amazing tenacity in his pursuit of the ideal.

The funeral service on Saturday, May 12, at St. Ann's Church, Manchester, and the committal at the Southern Cemetery, were attended by the Directors, principal Officials, and members of the Staff of the Company, and by many representatives of the Gas Industry.

BOOK REVIEWS

International Coal Carbonization*

Reviewed by Dr. J. G. KING, Chief Chemist, Fuel Research Station.

When it is considered how large a proportion of the coal mined is treated by carbonization processes it is surprising that there are so few British text-books available. For this reason alone this volume would be very welcome, but, in addition, the authors' method of treatment, whereby scientific facts are explained and applied to process work, should ensure it a warm welcome from all technical people concerned with the carbonization of coal.

During the last decade or so, scientific work upon coal carbonization has greatly increased and much more is now known of the behaviour of coals on coking, and of the means whereby given coals can be controlled and their behaviour modified. It is logical to suppose that coal to be used for carbonization processes should be assessed or assayed in the laboratory as to those properties which are peculiar to this purpose and which analysis only imperfectly reveals; the authors have treated this phase of the subject in fair detail and have endeavoured to explain how the laboratory results can be applied to process work. An even fuller treatment of this important subject would not have been amiss. The early chapters, dealing with differences in coal in a general sense, would seem to be rather slightly treated; a more comprehensive account would have been helpful to the reader in showing exactly which of the available types of coal were best suited for the varied conditions of carbonization. It is possible that limitations of space prevented this.

Throughout the first section of the book special attention is directed towards the production of smokeless domestic fuel by high and medium temperature carbonization and by careful blending and pre-treatment. As a pioneer in this type of work Mr. Roberts speaks with authority on the advances which have been made in recent years.

In the second section of the book, which deals more particularly with the practical side of coal carbonization, low-temperature carbonization, gas manufacture, and coking practice are dealt with. It is fortunate that, in this combination of authors, there should be presented the views of both British and Continental authorities. In following out the technique of each process the authors draw attention in certain cases to those researches which explain the effect of important variables such as temperature, rate of heating, effect of plastic layer, &c.

The chapters on low-temperature carbonization describe most of the well-known processes, group these into types, and give test data where these are available. It seems strange that there is no mention of the Freeman, Crozier, Fusion, and Fuel Research Board processes.

In four chapters on high-temperature carbonization, gas-works and coking practice are dealt with separately. The former gives a good account of vertical retort systems and the more recent chamber ovens, but horizontal-retort practice is dismissed very briefly with a description of a 1926 setting. Unfortunately in neither case is the earlier system of discussing experimental data followed; no mention is made of steaming in vertical retorts or of the extensive experimental data available. There has also been important recent work at the Fuel Research Station upon steaming in horizontal retorts, upon increasing the throughput in horizontal retorts by increasing the velocity of the heating gases, and upon the effects of size of coal in both horizontal and vertical retorts; none of this has been discussed. Coking practice is dealt with fully, and the inclusion in a British publication of recent continental advances should be of considerable value to the British technologist. The subject-matter is again mainly descriptive, and some of the more important experimental data having direct application to coking practice, such as that of Ryan, or the more theoretical work of Burke, Schumann, and Parry, might with advantage have been discussed in this section.

The penultimate chapter discusses the production of solid smokeless domestic fuel by methods other than low-temperature carbonization. The value of blending in this connection is stressed.

Bye-products are dealt with briefly in the final chapter, just sufficiently to round off the volume. Nevertheless some of the omissions are rather surprising. For example, there is no mention of the use of active carbon for benzole recovery, or of Prof. Morgan's researches on tar. This chapter also briefly discusses the question of the hydrogenation of coal and tar.

Altogether this volume is one which will serve a most useful purpose in explaining researches upon coal carbonization in terms of carbonization practice, and in impressing upon the technical people concerned the desirability for making use in actual practice of the results of associated investigations. The subject-matter is clearly presented and the illustrations are very good. Important points are brought out particularly well by frequent and bold paragraph headings. The system of referring in prominent type to the names of investigators is to be commended as being helpful to the reader.

The authors and publishers are to be congratulated upon having produced a volume which is a distinct contribution to the literature of coal carbonization.

* "International Coal Carbonization," by John Roberts and Adol Jenkner. Pp. xvii. + 453. London: Sir Isaac Pitman & Sons, Ltd.; 35s. net.

WILLING'S PRESS GUIDE, 1934.*

It is the aim of the publishers to make the 1934 issue of "Willing's Press Guide" fully worthy of the reputation of its predecessors. So full a record in so compact a form and at so reasonable a price is no small achievement. In addition, the ease of reference afforded by the guide enables vital information, most necessary to advertiser and publisher alike, to be ascertained with a minimum of effort. Owing to the political situation in Ireland, a re-arrangement under the "Towns" and "Counties" sections has been considered advisable, Northern Ireland and the Irish Free State appearing under separate headings. It may be safely left to the reader to judge the success of this latest addition to the already long line of sixty issues which has built for "Willing's Press Guide" the reputation which it enjoys.

* Published by Willing Service, 356–364, Gray's Inn Road, W.C. 1. 2s. 6d., pp. 502 + viii. (Sixty-first issue).

Correspondence

The New Boys Calorimeter.

SIR,—I must thank you for your appreciative notice of my Guthrie lecture of May 4.

There is an unimportant correction which I should like to make. The slight error may well have been due to want of clearness on my part. The special Bakelite varnish which I applied to the base metal parts was baked on to the metal of my new calorimeter, not on that in the standard Boys instrument.

May I take this opportunity to answer a question which has been asked me? How do I intend to deal with the varying amounts of water which will be necessary when gas of different declared values is to be examined, because the making of "water wheels" of so many different dimensions would add greatly to the cost.

I did not touch upon this at the lecture because the Physical Society are not concerned with such matters. The answer to the conundrum is so obvious that I wonder the question should be asked. I simply alter the number of teeth on the sprocket wheels.

If you care to give up a few more lines of your valuable space the method will be this: Supposing I say 500 is a standard declared value, then the driving and driven wheels would have 50 teeth each. If a declared value of 480 is to be met then the driving wheel would have 48 teeth and so on for all multiples of 10. Where a value such as 475 occurs I do not propose 47½ teeth (though that is possible!) but in such rare cases use a pair of wheels in the right ratio—*e.g.*, 38 and 40.

Yours, &c.,
C. V. BOYS.

66, *Victoria Street*,
May 10, 1934.

Institution of Gas Engineers

Provisional Programme for 71st Annual General Meeting

We have received the following Provisional Programme from the Secretary of the Institution of Gas Engineers; the Official Programme will be sent shortly before the Meeting to all who have registered before May 26. Copies of the papers can be obtained prior to the Meeting by making application to the Secretary.

Tuesday, June 5.

10. 0 a.m. — Opening of the 71st Annual General Meeting in the Great Hall of the Institution of Civil Engineers, Great George Street, London, S.W. 1.

Welcome to Representatives from Overseas.

Adoption of the 71st Annual Report and Accounts. (Communication No. 84, a copy of which is sent to all members.)

Presentation of Medals.

Presidential Address by Mr. Frank P. Tarratt, M Inst.C.E., M.Inst.Gas E., Engineer, Newcastle-upon-Tyne and Gateshead Gas Company. (Communication No. 85, available at the Meeting.)

11. 0 a.m. to 12 noon. — Paper on "Some Aspects of Benzole Recovery and Refining," by S. A. W. Wikner, Assoc.M.Inst.Gas E., F.I.C., Bye-Products Works Manager, and Bernard Richardson, Assoc M.Inst.Gas E., Technical Superintendent, Newcastle-upon-Tyne and Gateshead Gas Company. (Communication No. 86.)

12.15 p.m. — Photograph of the 71st Annual General Meeting on the Horse Guards Parade, St. James' Park, S.W. 1.

12.45 p.m. — President's Luncheon in the Ballroom of the Savoy Hotel, Victoria Embankment, London, W.C. 2.

3. 0 p.m. — Paper on "The Use of Town Gas in the Steel Industry," by Dr. H. Alex. Fells, B.Sc., A.I.C., A.M.I.Min.E., Chief of Fuel Research Department, The Sheffield Gas Company. (Communication No. 87.)

4. 0 p.m. to 5. 0 p.m. — Paper on "Recent Experiments at the Fuel Research Station on the Production of Solid Smokeless Fuels," by Engineer Captain J. Fraser Shaw, R.N. (Ret.) Chief Engineer, and Dr. J. G. King, B.Sc., F.I.C., Chief Chemist, Fuel Research Station, Department of Scientific and Industrial Research. (Communication No. 88.)

Scrutineers' Reports of the Ballots.

2.30 p.m. to 6.30 p.m. — Ladies' visit to and tea in the Gardens of the Zoological Society of London, Regent's Park, London, N.W. 8, by invitation of Mrs. Frank P. Tarratt.

Ladies will make their own transport arrangements. Tea will be served from 4 to 5.30 p.m.

9. 0 p.m. to 2. 0 a.m. — Reception and Dance in the Ballroom of the Park Lane Hotel.

Wednesday, June 6.

10. 0 a.m. — Paper on "Impressions of the Gas Industry in Canada and the United States of America; Gas Production," by Col. W. Moncrieff Carr, T.D., M.Inst.Gas E., Engineer, General Manager, and Clerk, Stretford and District Gas Board. (Communication No. 89.)

10.45 a.m. — Paper on "Impressions of the Gas Industry in Canada and the United States of America; Distribution and Utilization," by C. A. Masterman, M.A., F.I.C., Chief Technical Officer, Gas Light and Coke Company. (Communication No. 90.)

11.30 a.m. to 12.15 p.m. — Paper on "Impressions of the Gas Industry in Canada and the United States of America; Administration, Accounting, and Publicity," by Thomas Carmichael, M.Inst.C.E., M.I.Mech.E., M.Inst.Gas E., Engineer and General Manager, Portsmouth Gas Company. (Communication No. 91.)

12.45 p.m. to 6.30 p.m. — Visit to the Dagenham Works of the Ford Motor Company, Ltd., by the M.S. "New Dagenham," with luncheon and tea aboard, or by motor coach.

Ladies may participate. Transport by river is limited to 250 passengers.

Thursday, June 7.

10. 0 a.m. — Paper on "Correlation of Costs and Gas Charges with particular reference to Working Results at Macclesfield," by H. Curtis, M.Inst.Gas E., Engineer and Manager, Macclesfield Corporation Gas Department. (Communication No. 92.)

11. 0 a.m. — General Meeting of the Benevolent Fund of the Institution of Gas Engineers. (The Annual Report and Accounts are sent to all members.)

11.15 a.m. to 12.15 p.m. — Paper on "Modernizing Small Gas Undertakings," by D. B. Parkinson, M.A., Assoc.M.Inst.Gas E., Engineer at Chief Office, British Gas Light Company, Ltd. (Communication No. 93.)

Thursday, June 7 (*continued*).

12.15 p.m. to 12.30 p.m. — Concluding Business of Meeting.

12.45 p.m. — Council Luncheon to the President in the Tudor Room of the Park Lane Hotel.

2. 0 p.m. to 6.30 p.m. — Visit by Motor Coach to the Willoughby Lane Works of the Tottenham and District Gas Company and to the Gothic Works of Glover & Main, Ltd., Edmonton.

Ladies may participate.

Friday, June 8.

SUSSEX TOUR.

Victoria—Eastbourne—Beachy Head—Lower Dicker—Alfriston—Eastbourne—Victoria.

Victoria Station (9.35 a.m.) by special train to Eastbourne Station (11.12 a.m.)

Eastbourne Station by motor coach (11.20 a.m.) to Beachy Head (11.40 a.m.) thence to the Grand Hotel, Eastbourne (12.30 p.m.) for civic reception and luncheon (12.45 to 2.15 p.m.).

Grand Hotel, Eastbourne (2.30 p.m.). by motor coach to—

The gas-works and then to the showrooms, demonstration theatre, and cookery school of the Eastbourne Gas Company, returning to the Grand Hotel (5 p.m.).

or The Old Dicker Pottery, Lower Dicker, Hellingly, and to the Church of St. Andrews, the Star Inn, and Ye Olde Smugglers' Inn, Alfriston, returning to the Grand Hotel (5 p.m.).

Tea, by invitation of the Chairman and Directors of the Eastbourne Gas Company, will be served at the Grand Hotel, Eastbourne, from 4 to 5.30 p.m.

Grand Hotel (6.30 p.m.) by motor coach to Eastbourne station (6.40 p.m.).

Eastbourne Station (6.45 p.m.) by special train, on which dinner will be served, to Victoria Station (8.29 p.m.).

Ladies may participate. The accommodation at the Grand Hotel necessitates the party being limited to 250. The special railway ticket will entitle the holder to travel to and from Eastbourne by the special train or any ordinary train on the Friday. The ticket may be converted to a summer return ticket on payment of a supplement of 4s. 3d. at Eastbourne Station.

A "Lancastria" Cruise in June.

Members of the Institution of Gas Engineers who took part in the cruise in the "Lancastria" last June, and others, will be interested to know that Cunard Cruise No. 6 starts from Liverpool on the day following the termination of the June Meeting of the Institution.

This year the "Lancastria" (17,000 tons) will leave Liverpool on Saturday, June 9, at 5.30 p.m., on a 13-day cruise, covering 3,653 miles, to Cadiz, Casablanca, Las Palmas, and Madeira, arriving back at Liverpool on Friday, June 22, at 11 a.m. Passports will not be required. Optional shore excursions will be arranged and notified to passengers before sailing.

There will be one class only on the cruise, the rates for which are from fifteen guineas per passenger, according to the type and position of the rooms chosen. The accommodation on the four decks comprises inside and outside rooms for one, two, or three passengers, and inside single berth rooms. Slightly increased fares are payable for rooms with private baths, or for rooms normally for two or three persons but reserved for one or two passengers respectively.

Berths may be secured by a deposit of one-quarter of the passage money, the balance being payable at least seven days before the date of sailing. Children under twelve years of age pay half-fare. Railway tickets to and from Liverpool, at the ordinary single fare and one-third, will be available. A special boat train will be run between London (Euston) and Liverpool (Riverside) and *vice versa*.

The best rooms at all rates may now be secured, but the accommodation is rapidly being taken up, and immediate reservation is essential. Applications for accommodation should be sent to the Cunard Steam Ship Company, Ltd., Cruise Department, 26, Cockspur Street, London, S.W. 1. Callers should ask for Mr. Foulkes or Mr. Steed, either of whom may be telephoned at WHItehall 7890.

THE NEWS OF THE WEEK

The London Section of the British Association of Chemists held their annual meeting on Friday last in London, when Mr. J. C. Mellersh, who presided, was re-elected Chairman of the Section.

"**The Electric Cooker has been Removed**, and we shall be glad if you will install the gas as soon as you can." This is an extract from a communication received last week by the Lowestoft Water and Gas Company.

Copies of the Recently Issued British Standard Specification for Machine Cut Gears, B. Level (with Helical, Curved and Straight Teeth) (No. 545-1934) can be obtained, price 5s., from the Secretary of the Institution of Gas Engineers, 28, Grosvenor Gardens, S.W. 1.

A Large Area between Epsom, Sutton, and Morden was affected last Sunday night by an electricity failure. The current failed shortly after 9 o'clock but was restored after a few minutes. Soon afterwards it failed once more, the breakdown on this occasion lasting for nearly an hour.

The Liverpool Gas Company are offering £10 for each of the £10 5% preference shares and £12 10s. for the £10 ordinary shares of the Formby Gas Company. The sale of the undertaking is subject to confirmation by shareholders of both Companies and the granting of the necessary order by the Board of Trade.

The Society of Illuminating Engineers held their Annual General Meeting on May 8. The statement of accounts for the past year shows that, in spite of adverse times, the Society continue to make satisfactory headway. Mr. Samuel G. Hibben, B.Sc., delivered an address on "Recent Progress in Illuminating Engineering in the United States."

In Our Account of Prof. Boys' lecture on his new calorimeter ("JOURNAL" for May 9, p. 310) we reported that this was delivered before the Institute of Physics. Actually it was given at a meeting of the Physical Society, to whom we apologize for the error. Also, the meeting was held at the Imperial College of Science and Technology —not at the Imperial Institute.

Cologne and the Ruhr Gas Grid.—Last autumn the Cologne municipal authorities decided to give up making their own gas, which satisfied 30% of consumption, and to go over entirely to the long-distance gas supplied by the Ruhr Gas Company and the Thyssen concern. It is now reported that these measures have effected a saving of about 500,000 Rm.—*Iron and Coal Trades Review.*

A Special Sub-Committee appointed by Bradford Corporation some weeks ago, to consider the possibilities of amalgamation of the Gas and Electricity Departments, met on May 10 for the first time, and adjourned for a month to allow time for the preparation of a report on the advantages and disadvantages, with special reference to the financial aspect and to what is being done in other towns.

New Showrooms for the Gas Light and Coke Company were opened in Battersea Park Road, S.W. 11, yesterday, by His Worship the Mayor of Battersea (Councillor J. A. Campbell, J.P.). An account of the proceedings, over which Sir David Milne-Watson, LL.D., D.L. (Governor of the Company), presided, together with a description of the new premises will be given in next week's issue of the "JOURNAL."

The Birkenhead Gas Company co-operated with the Scala Cinema, Birkenhead, recently, in arranging a novel window display in connection with the film "The World Changes." Attached to this cinema is a display window which is used for advertising purposes, and in it was placed one of the latest gas cookers in juxtaposition with a tripod from which a cauldron was suspended by chains. Alongside this display was a card drawing attention to the freaks of the whirligig of time—"In 1034 cooking was a drudgery, in 1934 a pleasure—thanks to the facility of gas." The Gas Company also devoted their showroom window to a similar display.

A Battery of Coke Ovens, numbering 26, was lighted last week at Consett, Durham. Another 12 are to be started shortly at Marley Hill.

A Series of Cookery Demonstrations was held recently under the auspices of the Winchester Water and Gas Company. Well over a thousand people attended the lectures and listened with interest to Miss H. Crawford Fox, of the Parkinson Stove Company, explaining the merits and giving practical demonstrations of gas cooking. There was a comprehensive exhibition of gas appliances, and quite a number of inquiries and orders were received by the Gas Company during the week.

A Demonstration of Permanent Hair Waving, with a gas-operated machine, was seen at the Blackburn Corporation Gas Showrooms, on May 10. The afternoon and evening sessions were well attended by hairdressers and the general public, two local young ladies being chosen from many applicants to receive a free permanent wave. Hairdressers evinced great interest in the demonstration, and after inspecting the system and the results obtained they were enthusiastic in their praise.

A Successful Exhibition was Organized by the West Bromwich Gas Department, with the co-operation of various manufactures of gas appliances, recently at Friar Park, for the benefit of the residents of that outlying district. The policy of the Gas Department proved to be sound for the attendances were good, and great interest was taken in the demonstrations of cooking and washing by gas. The cake-baking competitions, for which handsome prizes were offered, were the cause of much enthusiasm among the women of Friar Park.

Over £200 Worth of Gas Appliances was sold as the result of the recent exhibition of gas appliances at Dukinfield Town Hall. At the May meeting of the Town Council, Alderman J. W. Underwood, Chairman of the Gas Committee, said his Committee had passed a vote of thanks to the Directors of General Gas Appliances, Ltd., of Audenshaw, for their kindness in running the exhibition. An average of 100 people attended each of the ten sessions. All the stoves purchased at the exhibition were in operation before the exhibition closed.

Benzol and By-Products, Ltd.—The Directors' report shows that, after depreciation, the loss to Sept. 30 last was £5,956 (against £4,269). Deducting £320 from tax reserve, there remains a net loss of £5,636. The debit brought in was £126,831, making £132,468 debit forward. The Coal Mines Reorganization Commission requires the Company to submit or join in submitting an amalgamation or absorption scheme. The scheme by the West Yorkshire Coal Owners for voluntary amalgamation of collieries in West Yorkshire area was not agreed to by the Company.

The Broadstairs Gas Company, in conjunction with the Parkinson Stove Company, Ltd., Richmonds Gas Stove Company, Ltd., and R. & A. Main, Ltd., recently held a successful gas exhibition in the Playhouse. The exhibition was opened by Mr. B. J. Pearson, J.P., Chairman of the Broadstairs and St. Peter's Urban District Council. Cookery Demonstrations were given twice daily by Mrs. M. Trainor, M.C.A., and were greatly appreciated, there being no fewer than 1,450 attendances. A cake baking competition attracted a large number of entries, and the exhibition created much interest in the town.

The Association of Statutory Inspectors of Gas Meters, at the invitation of the Mayor and Corporation of Exeter, will hold their fifteenth Annual General Meeting in that city from July 17 to 19 next. The Mayor and Sheriff of Exeter will receive the delegates and their ladies in the Guildhall at 8 p.m. on Tuesday, July 17. The business meeting of the Association will take place in the Guildhall on the following morning, when the chair will be taken by the President, Councillor J. W. Willoughby, M.B.E., J.P., Chairman of the Salford Justices' Gas Meter Testing Committee. At the invitation of the Chairman and Directors of Messrs. Willey & Co., Ltd., a visit will be paid to their gas meter works on Thursday, July 19.

THE NEWS—*continued.*

Severn Valley Gas Corporation, Ltd.

Increase of Capital to £1,000,000.

Severn Valley Gas Corporation, Ltd., whose recent offer to stockholders of the Cheltenham and District Gas Company has been accepted by holders of approximately 50% of the stock—as was mentioned in last week's "JOURNAL"—has increased its capital to £1,000,000, divided as follows:

	£
400,000 4½% cumulative preference shares of £1 each	400,000
400,000 ordinary shares of £1 each	400,000
200,000 deferred shares of £1 each	200,000
	£1,000,000

It is stated that 100,000 of the deferred shares have already been subscribed for cash at par. Issues of preference and ordinary shares may be expected shortly.

It is understood that on completion of the Cheltenham purchase representation of that Company on the Board of the Corporation will be arranged.

Evening Star Lodge, No. 1,719.

Installation Meeting.

The Installation Meeting of the Evening Star Lodge, No. 1,719, was held at Freemasons' Hall, Great Queen Street, on Wednesday, March 28, with W.Bro. W. H. Warren in the Chair, and was well attended by the brethren and their guests.

W.Bro. Warren installed his successor, Bro. W. F. Broadberry, in the Chair of the Lodge, and after the Investiture of W.Bro. A. C. Beal as Treasurer, the other Officers were appointed as follows:

I.P.M.	W.Bro. W. H. Warren
S.W.	Bro. G. D. Bidwell
J.W.	W.Bro. W. A. Scott, L.R.
Chaplain	W.Bro. A. B. Potterton, P.M.
Secretary	W.Bro. Rae P. Normand, P.M.
D.C.	W.Bro. T. F. C. Potterton, P.M.
S.D.	Bro. S. Hay
J.D.	Bro. E. P. Stevenson
Organist	Bro. J. Waldron Swan
Asst. Secretary	Bro. E. J. K. Fussell
I.G.	Bro. H. J. Randall
Stewards	Bro. R. Kimber Bro. J. C. Wright Bro. J. A. Williams Bro. C. A. King
Tyler	W.Bro. R. H. Goddard

A Past Master's Jewel was presented to W.Bro. Warren in recognition of his services to the Lodge during the past year.

The next meeting of the Lodge will be at Freemasons' Hall, Great Queen Street, on Monday, June 4, to give Masonic members of the Institution of Gas Engineers, whose Annual Meeting in London will be held that week, the opportunity of attending.

Scottish Non-Statutory Gas Companies.

Position Under the Gas Undertakings Bill.

At the meeting of the District Executive Board for Scotland of the National Gas Council, which was reported in the "JOURNAL" last week, it was unanimously resolved that the report of the Committee of Management upon the Gas Undertakings Bill should be remitted back to them, with instructions to call a further meeting of all representatives of Non-Statutory Gas Undertakings. This meeting was subsequently held in the North British Station Hotel, Edinburgh, on May 1, when a Memorial was drawn up on behalf of the Non-Statutory Gas Companies. Included in this Memorial was a resolution that had been passed unanimously at the meeting declaring:

> "That this Meeting of Non-Statutory Undertakers, while not objecting to the technical provisions of the Bill, regards with grave apprehension the provisions whereby such undertakers are compelled to apply to the Board of Trade for a Special Order."

The meeting also appointed a small Committee with full powers to co-operate with the National Gas Council and to take such independent action as they might deem expedient to give effect to the views of the meeting and to secure that Non-Statutory Gas Undertakings in Scotland should be excepted from the terms of the Bill, particularly as regards Sections 7, 8, and 9.

In the course of discussion at the meeting, all the speakers made it perfectly clear that there was nothing in the technical obligations or restrictions proposed to be imposed by the Bill that would cause concern to any of the Non-Statutory Companies. If Parliament is desirous of imposing upon Non-Statutory Gas Companies any technical restrictions or obligations, every consideration will be given to such proposals by the industry in Scotland, but otherwise it is felt that the provisions of the Bill should be confined to Statutory Undertakings.

An Investors' Gas and Electric Trust.

Details of an Investors' Gas and Electric Trust, which has been formed by interests associated with Messrs. Dawnay, Day, & Co., are announced. The new Trust offers an investment planned to include fourteen leading companies in the gas and electrical industries.

It is claimed for the new Trust that it provides a convenient method of investing in an essential and relatively stable field of enterprise.

The trustees for investors in the Trust will be the Royal Exchange Assurance Company.

South-Eastern Gas Corporation's Offer to Chertsey.

It is announced that an offer has been made by the South-Eastern Gas Corporation to stockholders of the Chertsey Gas Consumers' Company to acquire the whole of that Company's issued ordinary stock (£51,985 nominal). The offer consists of the following options:

For each £100 nominal value 10% standard ordinary of the Chertsey Company, now paying 11% per annum, either—

(*a*) £245 in cash or
(*b*) 183 South-Eastern Gas ordinary shares of £1 each, credited as fully paid.

For each £100 7% standard ordinary, now paying 8% per annum, either—

(*c*) £178 in cash or
(*d*) 133 South-Eastern Gas £1 ordinary.

For each £100 5% standard ordinary, now paying 6% per annum, either—

(*e*) £135 in cash or
(*f*) 100 South-Eastern Gas £1 ordinary.

New Oil-from-Coal Plant.

According to the *Western Mail*, South Wales will shortly possess its first oil-from-coal (or rather slack) plant.

Sir Thomas Edelston, Director of the National Coke and Oil Company, Ltd., the £1,000,000 concern, has visited Cardiff to make preliminary arrangements for a site for the new plant and for a three-year supply of coal.

The plant, it is stated, will occupy between 5 and 10 acres of land. It will be on the same lines as the Company's unit at Cannock Chase, which has been turning out 1,500 gallons of petrol a day since last September.

The Company propose to build a chain of works up and down the country, and it is estimated that in a few months they will be producing 4½ million gallons of motor spirit.

Application to Erect New Holder at Middlesbrough.

Ministry of Health Inquiry.

At a Ministry of Health Inquiry at Middlesbrough into an application by the Town Council to borrow £49,624 for a new gasholder the contract for which has been placed with Messrs. Ashmore, Benson, Pease, & Co., Ltd., in conjunction with the Tees Side Bridge and Engineering Company, Ltd., it was stated that in spite of having to contend with extension in the use of electricity the gas undertaking had shown continual progress.

The Corporation obtain a supply of crude gas in bulk from the coke ovens of Messrs. Dorman, Long, & Co., and only a small emergency plant is maintained by the Corporation in case of a stoppage at the ironworks.

The Corporation have adopted a block system of charges which gives substantial rebates on consumptions over 20,000 c.ft. a quarter and have low prices for industrial and central-heating purposes. One bakery is using 4½ million c.ft. of gas a quarter, a foundry consumes 2½ millions a quarter, while another firm is now considering a scheme for the heating by gas of billets required for wire-drawing.

SIR ARTHUR DUCKHAM MEMORIAL FUND

Official List of Donations from May 5 to May 11

The Committee hope to be in a position to endow a "Duckham Research Award," to be applied for the period and purpose of specified investigations of interest to the Gas Industry, at places, at home or abroad, selected as being appropriate for the conduct of each particular investigation. Subscribers, therefore, are not only paying a tribute to the memory of Sir Arthur Duckham, but are also assisting to strengthen the Gas Industry at a critical period of its development.

THE £10,000 MARK NOW PASSED

Name and Town.	Amount. £ s. d.
J. M. Campbell, Margate	1 1 0
Cheltenham and District Gas Company	5 5 0
David K. Clarke, Cambridge	2 2 0
Deal and Walmer Gas Company	9 0 0
Greenwood, Peters, & Beardsley, Leatherhead	1 1 0
Institution of Heating and Ventilating Engineers, London	5 5 0
Kidderminster Gas Company	5 5 0
London and Southern District Junior Gas Association	2 2 0
Loughborough Corporation Gas Department	3 3 0
John W. McLusky, Glasgow	5 5 0
Midland Commercial Gas Association	5 5 0
Midland Junior Gas Association	3 3 0
North of England Gas Managers' Association	26 5 0
Dr. A. Parker, London	1 1 0
H. G. Ritchie, Falkirk	1 1 0
Rowley Regis and Blackheath Gas Company	5 0 0
South Suburban Gas Company, London	10 10 0
Franklin Thorp, Whitefield	2 2 0
Todmorden Corporation	5 0 0
Warwick Gas Company	5 5 0
J. Wesley Whimster, Bath	2 2 0
Donations (21) paid above	£ 106 3 0
Donations (532) paid previously	9,259 0 6
Total Donations (553) paid	£9,365 3 6
Donations (14) promised	653 1 0
Total Donations (567) paid or promised	£10,018 4 6

British Commercial Gas Association.

Midlands District Conference.

The Chairman of the Leicester Gas Committee (Alderman H. Carver) presided at a Midlands District Conference of the British Commercial Gas Association, held at the Grand Hotel, Leicester, on May 11.

A civic welcome was extended to the Conference by the Lord Mayor (Alderman W. K. Billings), and other speakers, besides the Chairman, included Sir Percy Alden (Chairman of the British Institute of Social Service), who gave an address, and also Dr. J. A. Fairer, the County Medical Officer of Health.

At the Luncheon over which Alderman Carver presided, the speakers were the Lord Mayor, Mr. F. J. West, of West's Gas Improvement Company, Ltd., Sir Arthur Hazlerigg, the Lord Lieutenant, Alderman Hume, Chairman of the Birmingham Gas Committee, Mr. A. M. Lyons, K.C., and Mr. W. D. Rowe, Manager of the B.C.G.A.

On the motion of one speaker, a menu card signed by all present was sent to Sir Francis Goodenough who is recovering from illness.

At the afternoon session, the Lady Mayoress presided, and Mrs. Eileen Murphy, of the B.C.G.A., gave a talk on "Home-Planning," emphasizing the manner in which the Gas Industry had set to work to save labour in the home. She pointed out that heating, cooking, lighting, and constant hot water were all at the disposal of the housewife who used gas.

Miss Shiona Mitchell, the 4 years old daughter of Mr. James Mitchell, the Leicester Gas Engineer and Manager, presented the Lady Mayoress with a bouquet.

Subsequently a programme of music and tea were provided. About 250 ladies accepted the invitation, and not a few of the men delegates stayed for the afternoon session.

New Dry-Seal Gasholder at Lausanne.

Necessitated by reason of the increasing demand for gas, a new dry gasholder on the Klönne principle has recently been put into service at Lausanne. It has a capacity of 1,415,000 c.ft. and was constructed by Messrs. Sulzer Brothers, of Winterthur.

The holder has a total weight of 620 tons and measures 110 ft. in diameter, with a cylinder 172 ft. high, the maximum height being 197 ft. For inspecting the interior, a stage is fitted below the roof in the ventilating turret with a hoist from the stage to the piston. The hoist can be operated to move up or down either from the stage or from the hoist itself, or from the piston.

Constructed partly by riveting and partly by welding, the whole erection was completed in the comparatively short time of 6½ months.

More the Appliances, Cheaper the Gas.

A novel discount scheme adopted by the Southgate and District Gas Company should prove highly attractive to consumers and it will certainly interest our readers. In a nutshell the plan is "More the appliances, cheaper the gas," and it should provide a strong incentive to the greater use of gas for water heating. The new method of charging for gas applies to "ordinary" domestic consumers who have installed a storage gas water-heater of not less than ten gallons capacity, or of not less than two gallons per minute capacity if of the instantaneous or geyser type.

The terms consist of a graduated scale of discounts, the rate of discount increasing with the number of gas appliances in use. The total number of appliances must be not less than three. One of these must be a gas water-heater of the specified type, the remainder being any of the following: Cooker, fire, radiator, copper or boiler, airing cupboard, refrigerator, and gas for lighting. In the case of small appliances—*e.g.*, poker, iron, clinical lamp, &c.—any two of these count as one. The scale is given below:

Number of Appliances.	Discount off Gas Bill.
3 appliances including gas water-heater	2d. in the £
4 " " " "	4d. " £
5 " " " "	6d. " £
6 " " " "	10d. " £
7 " " " "	2s. 0d. " £
8 " " " "	3s. 0d. " £
9 " " " "	3s. 6d. " £
10 (and over) " " "	4s. 0d. " £

Proposed Extension of Area at Hereford.

The report of the Gas Committee to the Hereford City Council recently foreshadowed a possible expansion of the gas undertaking.

The Committee recommended that (1) application be made to the Board of Trade for a Special Order for the purpose of extending the area within which the Corporation might supply gas, so as to include the parish of Holmer, and parts of the parishes of Pipe and Lyde, Burghill, Stretton Sugwas, Breinton, Clehonger, Haywood, Grafton, Lower Bullingham, and Hampton Bishop, all in the rural district of Hereford; also for the purpose of conferring further powers upon the Corporation in relation to their gas undertaking and the supply of gas by them; (2) the Town Clerk and Messrs. Sharpe, Pritchard, & Co., be in-

THE NEWS—*continued.*

structed to take all necessary steps for carrying the resolution into effect.

In proposing the adoption of the report, Alderman Witts (Chairman) said that it was not intended to extend the area just at present. Whenever they had extended it they had had to obtain sanction from the County Council, but they thought it far better to obtain powers from the Board of Trade.

The Committee also recommended the Council, in view of the recent discussion between the Government and the representatives of the coal industry, to authorize the Committee to place orders with the present contractors or others for the supply of coal sufficient for their requirements for a further period of 12 months from July 1, 1935, at present prices. Existing contractors, he said, were prepared to accept their bookings until June 30, 1936.

Amendment of Law of Arbitration.

The Bill to amend the Law relating to Arbitration has now been passed by both Houses of Parliament. On the third reading in the House of Commons the Solicitor-General offered his congratulations to those associated with the promotion of the Bill.

He said: "It is a technical and complicated measure, but is an extremely useful addition to a branch of the law on arbitration which affects many people and many contracts. It will allow of certain deficiencies which have made themselves apparent being remedied. Anybody who is familiar with the subject knows that a Bill of this kind must have required a great deal of care in its preparation, and I congratulate those responsible for the work that they have done in the matter."

The Bill was drafted by a small Committee, of which Lord Askwith was Chairman and Mr. J. R. W. Alexander (Secretary of the Institution of Gas Engineers) was a member.

Blackpool's Athletic and Social Club.

A Go-Ahead Organization.

Mainly as a result of the efforts of the Engineer and Manager of the Blackpool Gas Department (Mr. T. R. Cook), an Athletic and Social Club was formed in 1931 for the benefit of employees in the Department; and of the 240 employees who are eligible almost all are members.

At a subscription of 3d. per week, deducted from wages, many varieties of indoor and outdoor sport are available, including cricket, bowls, tennis, angling, billiards, table tennis, &c., while periodical concerts, whist drives, dances, and suppers are arranged. The Club premises, which were officially opened last winter, are fully licensed.

The Club is managed by a Committee consisting of 15 members, and the officers, who are elected annually, meet weekly to conduct the general business. It is agreed that the formation of this Club has led to a better feeling among the personnel of the Department; and consideration has been given to allowing members of the staffs of other gas undertakings to take advantage of the facilities afforded by the Club when spending their holidays in Blackpool.

Gas Exhibition at Kidderminster.

Price Reduction Announced.

A reduction in the price of gas by 3d. per 1,000 c.ft. was announced by Sir Sydney Lea, Bart., Chairman of the Kidderminster Gas Company, when he opened an exhibition of gas appliances at the Kidderminster Town Hall recently. Also present at the opening were Councillor G. S. Tomkinson and Mr. G. P. Lea (Directors) and Mr. P. Dougall (Engineer, Manager, and Secretary).

Examples of all the latest gas appliances for heating, cooking, and water heating were on view, and cookery lectures were given daily by Miss H. H. Tuxford, M.C.A., while gas washing machines were demonstrated by Miss C. E. Haslam, of the Mechanical Gas Boiler Company, Burnley.

The price reduction mentioned by the Chairman takes effect after the readings of the meters for the June quarter and is equivalent to 0·66d. per therm. It is interesting to note that the sales of gas by the Kidderminster Company have increased by over 80% during the past ten years, while the number of consumers has gone up by 50% in the same period.

Electricity Supply Means Increased Rates.

The Dumfries County Electricity Scheme has not turned out to be a self-supporting scheme, and at a meeting of the County Council last week it was stated that a rate of 6d. in the £ would in all probability be necessary to meet the deficit in income. In addition to this, there were still some districts that could not be supplied as the scheme now stood, and if these areas were brought in an expenditure of an extra £50,000 would be entailed, which would mean an additional 6d. in the £ on the rates.

Major Crabbe, Convener of the Electricity Committee, said there was going to be a deficit of £9,000 on the first year's working, and that meant at least a 6d. rate. There were 235 applicants for electrical supply who, owing to their geographical position or because of the apathy of their neighbours, had been left out of the scheme. To supply these an extra capital expenditure of £50,000 would be required, so that if the Council decided to give a supply to these people the net deficit would be raised by about another 5d. or 6d. in the £, as the majority of these would be small consumers.

He thought the Council had been a trifle sanguine about the potential consuming capacity of the county. There were many in the burghs who were highly pleased with their gas, which was evidenced by the increased returns of gas consumption, while large power consumers of electricity seemed to be on the decline than otherwise.

It seemed, therefore, that the county would be rated for a few years for electric light, and everyone would be rated whether they had an electricity supply or not.—From the *Cumberland Evening News*, May 10, 1934.

Gasholder Accident at Hong Kong.

The Gas Industry will have been shocked to read in the Daily Press of the serious gasholder accident at West Point, Hong Kong, on Monday last.

On application to the London Offices of the Hong Kong and China Gas Company we were informed that the following cable had been received:

"Serious damage to West Point holder caused by fire adjacent property. Holder out of action. Gas supply resumed. Damage to holder not yet fully ascertained."

We understand that the holder is of the ordinary water tank type.

Civic Visit to Hartlepool's Gas Undertaking.

Mayor and Corporation Inspect Works and Showrooms.

With the object of acquainting themselves with the firms that serve the town, members of the Corporation of Hartlepool recently paid an official visit to the works and showrooms of the Hartlepool Gas and Water Company.

The party was headed by the Mayor (Major J. B. Graham), who was accompanied by Mrs. Graham, most of the Aldermen and Councillors, and a number of prominent local residents. The visitors were welcomed by Mr. J. R. Bradshaw (Engineer, Manager, and Secretary) and spent the afternoon inspecting the gas plant, wells, and pumps at the Union Road Works, subsequently proceeding to the Company's showrooms before being entertained at tea at the Grand Hotel.

Here Mr. Maurice S. Gibb, C.B.E., J.P. (a Director of the Company), presiding, referred to the efforts that were being made to render gas even more useful to the housewife. Mr. Bradshaw also addressed the guests and mentioned the cordial relations which had always existed between the Company and the Corporation. He went on to say that the Industry was an old one with fine traditions and a virile outlook. During the previous month the Company had taken orders for the supply of 1,898 cookers, and in more than 500 cases this represented entirely new business and not merely the replacement of old cookers.

The Mayor replied on behalf of the visitors and thanked the Company for their hospitality before they proceeded on a motor tour to the Company's reservoirs, where the strengthening work now in progress was observed. At the conclusion of the tour the party returned to the Grand Hotel for refreshments.

In connection with the Civic Week an attractive brochure was issued, setting out, with a number of photographs, the history of the Hartlepool Gas and Water Company. The first gas-works in the Hartlepools, it is stated, was erected in 1836 by Mr. J. A. West, of Durham, and was situated

on a site between Commercial Street and Northgate. Ten years later the Company was formed by Act of Parliament with a capital of £9,000. The dividend paid the first year was 6½%, and the price of gas was 6s. 8d. per 1,000 c.ft.

A Coming of Age.

Congratulations to the *Croydon Co-Partner*, the Co-Partnership Journal of the Croydon Gas Company, on reaching twenty-one years of publication. We extract the following from the Coming-of-Age issue:

"The *Croydon Co-Partner* first came into being in January, 1913, and it was edited by Mr. W. H. Topley. It has appeared regularly ever since with the exception of the number for October, 1914—a lapse due to events which were destined to shake the very foundations of civilization. Throughout the war each number was published, although extreme difficulties were experienced by the then Editor, Mr. F. F. Wood; the shortage of paper and the difficulty in obtaining the necessary metal for block making were not the least of these. On Mr. Wood's appointment as Secretary to the Company, Mr. A. Tennant, the present Sales Manager of the East Surrey Gas Company, took over the guidance of the magazine's destinies, a task which he so ably performed for three years.

"In this, our own birthday number, we are proud to be able to wish someone whose connection with the Company has been of a so much longer period, many happy returns. On April 19 last, Mr. Charles Hussey celebrated his ninetieth birthday. Mr. Hussey, who has been called in the local Press "The Grand Old Man of Croydon," has been on the Board of Directors since July, 1890, and for 31 of those years was Chairman of the Company."

Inauguration of Coal Cleaning Plant.

Considerable interest was displayed at the formal opening of a new Huntington and Heberleine static dry washer (Raw's Patent) at the Wearmouth Colliery of the Wearmouth Coal Company, Ltd., Sunderland, on Friday last. A number of prominent men identified with the gas and associate industries attended.

At a lunch which followed the demonstration of the plant Col. Hugh M. Stobart, C.B.E., D.S.O., Chairman of the Company, presided, and in a speech said the plant had been operating for just over a month. The cost of such a plant was a serious item at any time and especially at a time like the present, but the Directors realized that the Company's coal, in spite of its wonderful reputation, was not maintaining its relative superiority in the gas coal markets. There were many reasons, one being that the demand for blast furnace coke had largely disappeared and large quantities of what had formerly been regarded as coking coals had been put into the gas coal market. Moreover, much of the coal on the market was dry cleaned, and, although the "Wearmouth Gas" was still at the top of the tree, these second quality coals, after dry cleaning, were undoubtedly better value at the price at which they could be secured than were the more expensive Wear Specials.

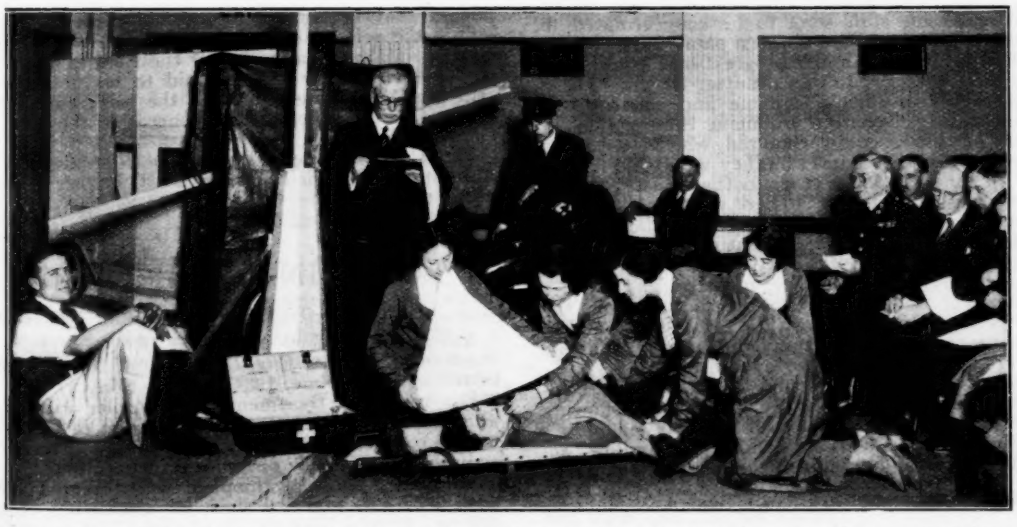
Such figures as they had obtained up to the present indicated that approximately 4,750 tons of stone would be removed by the process in an average year of 250 working days. The Hylton pit, a comparatively new pit, had a similar dry cleaning plant; and though the output was curtailed just now, the available figures showed that between 2,500 and 3,000 tons of stone would be removed annually in an average year, so that collectively the two plants would be taking out not less than 7,500 tons of stone in an average working year over and above what was previously taken out. He added that, of thirteen cargoes loaded at their staithes since the dry cleaning plants were started on April 26, in only one case had the sample taken for analysis shown an ash content of more than 5·4%, and in that one case the table had been interfered with by someone who thought he knew more than the experts. The samples were commercial samples taken at the staithes. He had not attempted to disguise the fact that prior to dry cleaning certain coals were better value for money than Wearmouth Gas, but he believed he could truthfully say that, value for money, their coal was now best.

Special Order Applications.

Portsmouth Gas Company.

A Special Order is being sought by the Company to repeal, alter, or amend all or any of the provisions of the Portsmouth Gas Order, 1926, and the Portsmouth Gas Order, 1927, requiring the Company to charge for gas supplied by them in scheduled areas, or certain part or parts of them, and to authorize them to charge a price or prices exceeding the price or prices for the time being charged by the Company in other part or parts of those areas or of their limits for the supply of gas.

Ambulance Teams Prepare for Emergencies



For the last eight years the South Metropolitan Gas Company has concentrated on accident prevention, and, to encourage a high standard of efficiency among the Ambulance Teams, the Good Samaritan Trophy is awarded annually to the team that secures the best aggregate of points as a team and as individuals. On May 8, at the Co-Partnership Institute, Vauxhall Works, eight of the Company's stations competed for the Trophy, which was won by the Vauxhall Works Team, with the Women Employees and Ordnance Wharf, second and third respectively. Mr. Henry Lesser (Service Secretary), in announcing the results, proposed a vote of thanks to the judges, Dr. R. B. Duncan, M.D., and Capt. A. C. White-Knox, M.B. Mr. A. H. Andrews (Joint-Manager of the Company), in seconding, stressed the importance of ambulance work. As our photograph shows, the organizers spared no efforts in making the settings for the tests as realistic as possible.

Benzole Recovery at Stoke-on-Trent

Inauguration of £12,000 Plant

Among the most important developments in the various undertakings of the Stoke-on-Trent City Corporation in recent years is the provision of the benzole recovery plant at the Etruria Works of the City Gas Department, which was formally inaugurated on May 1.

The plant has a capacity for treating 8 million c.ft. of gas daily and yielding more than 200,000 gallons of refined benzole per annum. Crude benzole has been produced for some time at the works, but, with the completion of the plant, the production of refined benzole will now be possible.

The total cost of the plant and its installation has been £12,000.

One of the aims of the Gas Committee is to cheapen the price of gas as a result of the profits which are expected to accrue from the production and sale of benzole.

The plant, which has a storage capacity of 81,000 gallons —nine tanks of 9,000 gallons each—has been in operation since Feb. 5, and to-day is producing 1,300 gallons of crude benzole per day. In regard to distribution, the proposal is to secure 1,000 gallon road and rail tanks for transporting the spirit to large users, while for small users there is already installed at the gas-works at Etruria a pump similar to those which form part of the equipment of all garages. The benzole is being sold at the following rates: For quantities up to 200 gallons, 1s. 2d. per gallon; between 200 and 500 gallons in one consignment, 1s. 0½d. per gallon; over 500 gallons in one consignment, 1s. per gallon, at works in buyers' receptacles.

Opening Ceremony.

There was a large attendance at the opening ceremony, which was performed by Mr. G. H. Barber, an ex-Lord Mayor of the City and a member of the City Gas Committee, who throughout has been one of the prime movers in this development, and has lost no opportunity for some considerable time of urging its financial soundness.

Among the company present, in addition to Mr. G. H. Barber, were the Lord Mayor of Stoke-on-Trent (Alderman A. Hollins), Alderman T. Mitchell, M.B.E. (Deputy Lord Mayor and Chairman of the Gas Committee), Alderman Charles H. Bowers (Vice-Chairman of the Committee), the City's Gas Engineer and General Manager (Mr. Alexander Mackay, M.I.Mech.E., M.Inst.Gas E.), and Mr. D. M. Henshaw (representing the Contractors for the plant, Messrs. W. C. Holmes & Co., Ltd., of Huddersfield).

The opening ceremony took place at the entrance to the new building which has been erected to house the crude benzole rectifying plants and storage tanks. Here Mr. G. H. Barber said that was indeed a red letter day for the City Gas Undertaking. It marked the accomplishment of yet another step forward in the City's undertakings. Their Gas Engineer and his staff were to be congratulated in enabling the work of installing the new plant to be carried out without interfering with the progress of the ordinary work of the undertaking. It was a matter for great satisfaction that they had such a capable and efficient Gas Engineer and staff. They were producing three gallons of crude benzole per ton of coal carbonized, which was better than the average for the country. They were able to carbonize 100,000 tons of coal a year, so that meant 300,000 gallons of crude benzole a year. There was a big and ever growing market for that benzole at 1s. a gallon. That should be a matter for considerable satisfaction, not only to the Gas Committee and the City Council, but to the whole of the ratepayers of the City, indicating as it did a valuable source of revenue. With the income from the benzole it was hoped to bring down the price of gas, and in that way encourage the pottery manufacturers and tile manufacturers to use more gas for oven firing.

Immediately following the opening ceremony, the company inspected the plant and saw the crude benzole flowing into the storage tanks. Members of the Gas Engineer's staff, including Mr. J. E. Stanier and Mr. Warrilow, accompanied the party and explained the installation.

Encouraging Local Use of Benzole.

The visitors were entertained at tea at the works, Alderman T. Mitchell, M.B.E., presiding during this part of the proceedings, and being supported at the principal table by the Lord Mayor, Alderman C. H. Bowers, and other members of the Committee and guests.

Alderman T. Mitchell expressed his pleasure in being able to take part in the proceedings and mentioned that he had been associated with the Gas Undertaking throughout his long public career. They congratulated their Gas Engineer in the part he had taken in securing that important development. It was hoped to encourage the use of the benzole among local motor users. The installation was one which would give every citizen of their great City satisfaction.

Alderman C. H. Bowers, in proposing a vote of thanks to Mr. G. H. Barber, said it was not often that a prophet lived to be honoured by his own generation, but that day they were breaking tradition. Ever since Mr. Barber joined the Gas Committee he had never ceased to urge that they should lay down a chemical and benzole recovery plant at the Etruria Works; often in the face of ridicule. He was pleased that the Lord Mayor and so many members of the Council were present that day to honour Mr. Barber and to see brought to fruition a development which would pay many times over for the investment in it.

They lived in the age of development, and he was sure what they had seen that day was by no means the end of the developments at their Gas Undertaking, said Alderman Bowers. They hoped to be able to help their local industry. The profits that would accrue from the benzole recovery would go a long way towards helping to reduce the price of gas in the City, which was the means by which they could help the industry of the district. He did not know the exact figures, but he believed that approximately £330,000 had been spent at the Etruria Works since the centralization scheme came about. Their Gas Engineer had been the master mind behind it all.

Mr. G. H. Barber replied to the vote of thanks, and expressed appreciation of the reference to himself. The Contractors were to be congratulated upon the manner in which they had carried out the work. Credit was also due to their Gas Engineer, who had enabled the new plant to be installed so satisfactorily in the limited space available at the present works. The new plant, he was convinced, would prove a valuable asset to the City.

A vote of thanks to the Contractors, Messrs. W. C. Holmes & Co., Ltd., was proposed by Alderman J. H. Dale. As those who had seen the plant would realize, he said, there were thousands of joints in it, which included pipes from 2½ in. to 24 in.; and when he told them that on the plant being started up not a solitary leak was found in those thousands of joints, he was sure they would agree it reflected credit on the thoroughness of the work of the Contractors. The relationship between the Committee, the gas-works staff, and the Contractors had been most agreeable and satisfactory.

On behalf of the Contractors, Mr. D. M. Henshaw said he was sure that as time went on, the benefit of having the benzole for sale would be generally recognized by the whole of the ratepayers of the City. The revenue from the sale of that benzole should enable them still further to reduce the price of their gas. He mentioned that his firm erected an ammonia washer at the Etruria Works in 1903. He appreciated the tribute paid to his firm's work, and said that the manner in which the work had been carried out was largely due to the co-operation they had received from Mr. Mackay.

Mr. Henshaw then presented a fountain pen each to Alderman T. Mitchell and Mr. G. H. Barber as a memento of the occasion.

CONTINENTAL NOTES

REMOVAL OF THIOPHEN FROM BENZOLE.

An abstract of a paper by H. N. Holmes and N. Beemann (*Ind. and Eng. Chem.*, 1934, **26**, 172-174) appears in *Brennstoff-Chemie*, 1934, **15**, 171 (May 1).

By repeated treatment of benzole with anhydrous aluminium chloride, the thiophen may be completely removed. The presence of moisture has an adverse effect and reduces the efficiency of removal of the thiophen. Benzole containing 0·447% of thiophen when treated successively with 0·5, 1·0, and 2·0 gms. of aluminium chloride per 100 c.c., filtered from the aluminium chloride addition compound and distilled at each stage, yields a product quite free from thiophen though complete purification is not effected when as much as 5·6 gms. of aluminium chloride is used in one portion. The most suitable temperature for the process was found to be 35° C. The losses on a technical scale should, in spite of the three distillations required, not exceed 1% in contrast with a loss of 8-12% with the normal sulphuric acid wash process.

National Gas Council of Great Britain and Ireland

SIXTEENTH ANNUAL MEETING

The Sixteenth Annual Meeting and Luncheon of the National Gas Council was held at the Hotel Metropole, London, on Tuesday, May 8, Sir DAVID MILNE-WATSON, LLD., D.L. (the President), in the Chair.

As usual the luncheon proceedings were of an informal character, the only toast being that of "The President," proposed by Mr. William Cash in half-a-dozen words and equally briefly responded to by Sir David.

The Annual General Meeting followed immediately after the luncheon, and the first business was to confirm and sign the minutes of the Fifteenth Annual General Meeting held on May 10, 1933.

The following list of members of the Central Executive Board appointed and nominated respectively by the District Executive Boards and Associated Bodies was announced:

LIST OF MEMBERS OF THE CENTRAL EXECUTIVE BOARD, 1934.

Chairman.—Sir David Milne-Watson, LL.D., D.L.
Vice-Chairmen.—Wm. Cash, F.C.A., J.P., F. H. Jones, M.Inst.C.E., Major G. H. Kitson, and Alderman J. H. Lloyd, M.A., J.P.
Hon. Treasurer.—Alderman Sir Wm. Kay, J.P.
Hon. Secretaries.—Sir Francis Goodenough, C.B.E., W. E. Price, A.M.Inst.C.E.
Trustees.—Alderman J. H. Lloyd, M.A., J.P., John E. Daw, J.P.

Eastern District.—Messrs. C. Rhodes Armitage (British Gas Light Company, Ltd., Norwich), Frank Prentice (Ipswich), R. G. Shadbolt (Boston), and W. W. Townsend (Colchester).

Irish District.—Messrs. R. Bruce Anderson, A.M.Inst.C.E. (Waterford, &c.), W. J. Grey, A.C.A. (Alliance and Dublin), J. McNicholl (Cork), and J. D. Smith, M.Inst.C.E., J.P. (Belfast).

London District.—Messrs. Thomas Hardie, M.Inst.C.E. (Gas Light and Coke Company), F. H. Jones, M.Inst.C.E. (Wandsworth), W. J. Sandeman (Croydon), and H. C. Smith, M.Inst.C.E. (Tottenham).

Manchester District.—Messrs. G. S. Frith (Runcorn), J. H. Sillitoe, A.C.I.S. (Manchester), W. J. Smith, B.Sc. (Bolton), and S. Tagg, M.Inst.C.E., J.P. (Preston).

Midland District.—Messrs. Leslie E. Clift (Redditch), R. J. Milbourne, J.P., Assoc.M.Inst.C.E., F.C.S. (Wellington, Salop), Alderman T. Mitchell, O.B.E., J.P. (Stoke-on-Trent), and A. W. Smith, F.C.I.S. (Birmingham).

Northern District.—Messrs. J. E. Blundell, M.Inst.C.E. (Carlisle), H. Lees, A.M.Inst.C.E., J.P. (Hexham), T. P. Ridley, F.C.I.S. (Newcastle-on-Tyne), and F. P. Tarratt, M.Inst.C.E. (Newcastle-on-Tyne).

Scottish District.—Messrs. G. Braidwood (Coatbridge), J. Lang (Vale of Leven), J. W. Napier (Alloa), H. G. Ritchie, A.M.I.Mech.E. (Falkirk), and Sir Wm. Whyte, O.B.E., additional member (not more than four representatives to attend Meetings of Board).

Southern District.—Messrs. Chas. F. Botley, M.Inst.C.E. (Hastings), Wm. Cash, F.C.A., J.P. (Bournemouth), H. C. Head, M.Inst.C.E., M.I.Mech.E., M.I.Chem.E. (Winchester), and A. Valon, M.Inst.C.E. (Bexhill-on-Sea).

South Wales District.—Messrs. Wm. Clark Jackson, A.M.I.Mech.E. (Neath), W. H. Johns, M.I.Mech.E. (Swansea), J. E. Kenshole (Aberdare), and H. D. Madden, M.Inst.C.E. (Cardiff).

South-Western District.—Messrs. S. E. Halliwell, F.C.I.S. (Bristol), S. J. Ingram (Truro), Col. R. L. Norrington, C.M.G. (Plymouth), and W. N. Westlake (Exeter).

Yorkshire (W.R.) District.—Messrs. H. E. Bloor, B.Sc., B.Eng. (York), E. H. Hudson (Normanton), A. L. Jennings (Spenborough), and C. S. Shapley, M.I.Mech.E. (Leeds).

Representing the British Commercial Gas Association.—Mr. R. Halkett, Major G. H. Kitson, Sir David Milne-Watson, LL.D., D.L., and Col. H. K. Stephenson, D.S.O., LL.D., J.P.

Representing the Gas Companies' Protection Association.—Messrs. R. J. Auckland, F.C.I.S., R. W. Edwards, D. H. Helps, A.M.Inst.C.E., and Wm. Phillips.

Representing the Institution of Gas Engineers.—Messrs. J. H. Canning, O.B.E., F.C.S., H. E. Copp, M.Inst.C.E., R. E. Gibson, M.Inst.C.E., and J. Terrace, M.Inst.C.E.

SIR DAVID MILNE-WATSON'S ADDRESS

The PRESIDENT, in moving that the Sixteenth Annual Report and Audited Statement of Accounts for the twelve months ended March 31, 1934, as circulated, be approved and adopted, said:

I think you will agree that the number and importance of the questions dealt with in the report is an eloquent testimony to the increasing value of the work done by the National Gas Council. Following the precedent of recent years, I do not propose to deal with the report in detail, but to make a brief survey of our position and prospects as an Industry, and to leave it to Mr. Cash to deal with the accounts.

The background against which our position has to be reviewed is certainly brighter than it was a year ago. The national finances have been put in order, and the recent Budget is itself sure proof of the improvement—both financial and economic—which has taken place. There is still room for very considerable expansion, particularly in the domestic sphere, and the firm policy of the Government is to encourage it. Already we have profited to some extent by the operation of that policy through the imposition of the tax on heavy hydrocarbon oils, and less directly by the guarantee of a preferential duty on the production of home-produced light hydrocarbon oils, and in other ways. Further, the Gas Undertakings Bill, to which I shall refer later, is doubtless viewed by the Government as a step towards helping an important home Industry.

For the moment, however, I am concerned with inquiring whether—and, if so, how—we in the Gas Industry can take advantage of the general improvement to which I have referred. That the Gas Industry will profit by the return of national prosperity is beyond doubt. Greater purchasing power will materially assist domestic gas sales, and greater trade activity will, I am sure, advance the consumption of industrial gas substantially. Gas is held in high esteem by the public, as the steady growth in the sale of gas appliances of all kinds conclusively proves, and it is generally recognized that as purveyors of heat the Gas Industry stands pre-eminent. But make no mistake; one must not infer that new business will come to us of its own accord. We must one and all go out and get it, but none the less I do feel that the opportunity for substantial expansion of business is now at hand.

Undoubtedly, on the production and distribution side of our activities, we can claim, generally speaking, to have reached a high level of efficiency, which reflects the greatest credit upon our engineers and those associated with them. On the selling side, however, there is, in my judgment, still room for considerable improvement. A different outlook is required from that which served in the past. Domestic consumers are now much more particular—I might even use the homely word "pernickety"—than they were even ten years ago. Propaganda has educated them to a much finer degree with regard to the relative efficiencies of appliances, while their appreciation of the merits of appearance, and their standards of convenience and comfort, have both increased out of all recognition. It is essential that we should endeavour to understand the viewpoint of consumers, and assimilate their mentality, so as to be able to gauge not only their present requirements, but their needs for the future.

AN ENAMEL AGE.

I may sum it up by saying that I believe we live in an enamel age. I am convinced that if the Gas Industry is not prepared to play its part and provide enamelled cookers, we shall be left behind. You have only to look into a showroom window and see a set of enamelled cooking and other appliances and then look at a set of black ones to appreciate that those who supply the black articles have

no chance against the enamelled. I take this opportunity, therefore, of urging on all of you to give this matter your most serious consideration.

All appliances falling short of the standards required in a quickly changing world—the ugly cooker, the low range necessitating stooping, the obsolete stove—must go. Ruthless scrapping may appear at the time to be expensive, but it will undoubtedly repay handsomely those who undertake it boldly.

At the same time, our propaganda and salesmanship should be directed to focussing the attention of consumers upon those characteristics of the best gas appliances which have no counterpart among those supplied by our competitors. I am positive that in years to come the public will demand scientific thermostatic control in every cooker, and the sooner they do so the better it will be for gas undertakers, as we have here a device which cannot be copied so far by our competitors, and which will, I am certain, leave gas supreme in the realm of cooking.

If I am right in this assumption, then surely it is to our advantage to educate the public as quickly as possible to this particular viewpoint, and thus ensure that in this direction, at any rate, we obtain a virtual monopoly.

The following extract from a publication by the American Gas Association is interesting corroborative evidence of the views I have just expressed.

"*Gas versus Electric Ranges.*

"Sales of gas ranges, 1933, 34·7% increase over 1932.

"Sales of electric ranges, 1933, 17% less than in 1932.

"In 1930-32, for every electric range sold, 10 to 11 gas ranges were sold.

"In 1933, for every electric range sold, 15 gas ranges were sold.

"In 1933, the average selling price per unit of the modern gas range with oven heat control was 9% less than in 1932. Notwithstanding this, the sales in dollars of the up-to-date range increased nearly 20%."

On the industrial and commercial side, our prospects are undoubtedly bright and full of promise. The imposition of the tax on heavy hydrocarbon oils has undoubtedly directed and concentrated the attention of large-scale fuel users upon the possibilities of gas for all purposes. Indeed, in numerous cases in which gas had not even been considered in the past it is now in use or in contemplation. Here, again, a very high order of salesmanship is required—a type of salesmanship which calls for particular qualities and training, with an intimate knowledge of heat processes and heat applications in trades and industries of every kind and description.

Development Centres.

It was the recognition of this fact that contributed largely to the setting up of the Development Centres which have been established in the districts. These Centres, I am glad to say, are performing the most valuable functions, rendering high services not only to gas undertakers but to industry in general throughout the country. The needs of individual industrial processes have been ascertained and met; new apparatus and appliances have been designed; and information with regard thereto has been rendered available to all subscribers to the Centres. Full advantage is being taken of the system by a large proportion of the Industry, but it is disappointing that—as stated in the Report—there are still a considerable number of undertakings which stand aloof. No undertaking, no matter how efficient it may appear to those responsible for its operation, can afford to ignore the facilities offered for securing technical information and advice which may lead to the adoption of improved methods and the acquisition of further business.

The Price Factor.

The price factor is, of course, in relation to both industrial and commercial gas of great importance and cannot be ignored. It is essential that methods of charge should be devised and put into operation which will encourage large consumptions, and not perpetuate the mischief of bygone years whereby the good consumer was sacrificed for the benefit of the unremunerative consumer. Our friends in the electricity supply industry have fully appreciated this point, and it is hardly possible to read a single speech made at the annual meetings of electricity supply undertakers without finding specific reference to the importance of the question of rate structure, and, in particular, the adoption of two-part tariffs. In the case of an old-established Industry such as is the Gas Industry, hampered by restrictions imposed by Parliaments of a bygone age, peculiar difficulties are to be anticipated in being able to adopt fresh methods of charge, but these difficulties must be faced and overcome, and I have no doubt that every one of you in this room is giving this matter his serious consideration.

However willing, or, indeed, eager, undertakings may be to adopt the policy outlined, yet there are still a large number of the smaller undertakings which are not in a position to give effect to it for the following reasons. It is too often the case, even where the carbonizing operations are efficiently conducted, that they have not the resources or facilities, personnel or knowledge, to meet the increasingly exacting requirements of the present-day gas consumer. Frankly, such undertakings cannot—at any rate, if their future is taken into account—be regarded as economic, and in many cases their continued existence in their present form is gravely threatened. I spoke on this question at some length last year, but I have no hesitation in referring to it again, because I feel that it is a subject of first-rate importance. It seems sometimes to be overlooked that it is a very short-sighted policy on the part of the proprietors of these small concerns to continue drawing large dividends while such are available, regardless of the fact that in the process their undertaking is being starved to death. I am satisfied that it is in the best interests not only of the consumers, but of the proprietors themselves, that they should make, wherever this is possible, reasonable arrangements—and I emphasize the word reasonable—for merging their undertaking in some neighbouring undertaking or some holding company.

On the instructions of the Central Executive Board the smaller undertakings have had the position clearly indicated to them, and though in some cases the danger has been appreciated and active steps are being taken to follow the advice tendered, there are many undertakings which up to the present have ignored the Board's suggestions. I hope that those who are still holding back will reconsider the position very seriously, not only because their failure to do so may have prejudicial repercussions upon the Industry as a whole, but will probably mean their own eventual collapse.

As far as the National Bodies are concerned, special endeavours have been made to ensure that they too should be rendered as efficient as possible, and the Joint Co-Ordinating Committee, consisting of an equal number of representatives of those bodies, has already done much useful work. It ensures the elimination of any duplication or overlapping of work or endeavour. Moreover, it can claim credit for completing the chain of Development Centres, so that the country can now be regarded as reasonably well served in this regard.

It has also set up a Technical Sub-Committee to act as the liaison between the various Centres. This Sub-Committee has met regularly and has already—as the Report states—dealt with a large number of technical matters of great importance to the Industry.

Arrangements have also been made by the Joint Co-Ordinating Committee for dealing with questions relating to the supply of gas for domestic purposes. To have placed upon the Technical Sub-Committees the responsibility of dealing with such questions would have been to overload them unduly, and it has accordingly been arranged that the work involved shall be carried on for the present by the British Commercial Gas Association, which has built up a staff for this purpose, and which will report to the Joint Committee in regard to the work undertaken and to the proposed policy to be followed in regard to domestic questions.

The Joint Co-Ordinating Committee have also asked the National Gas Council to obtain and tabulate full particulars as to the various methods of charge adopted by gas undertakers throughout the country, together with a statement as to the results accruing from the adoption of such methods of charge. Armed with these particulars it is felt that the Council can render great assistance to all undertakers who are contemplating the adoption of more attractive pricing arrangements.

I am sure the work of this Co-Ordinating Committee will become even more valuable as time goes on.

Gas Undertakings Bill.

Turning now to the Gas Undertakings Bill, I am sure you will all share my disappointment that the Bill does not place us on the same footing as the electricity supply industry, and, in particular, that the Government has not seen fit even to implement the findings of the Wrottesley Committee *in toto*. There are two material omissions—namely, the failure to give effect to the Recommendations of the Committee that the Special Order procedure should be simplified and thereby cheapened, and that undertakers should be empowered to impose a minimum charge.

With regard to the first point, the attitude of the House of Lords to this particular question probably made it politic for the Government not to include it in the Bill. I must confess, however, that I fail to discover any adequate reason why the minimum charge provisions were omitted. Minimum charges are put into operation by the Post Office

in their telephone service and are available to the electricity supply industry. Why we should not be allowed to have them passes belief.

I do not intend now to comment in detail on the Bill, but I hope that it may be possible to secure the insertion of helpful additions when it is in Committee Stage in the House of Commons. I feel that we are entitled to the most comprehensive measure possible, having regard to the importance of the Industry we serve and the difficulties which we must, in common with other industries, encounter in obtaining public legislation in these days when the time of the House of Commons is so fully occupied.

Nevertheless, the Bill, even as it stands, does contain one provision which can, in my judgment, be turned to great advantage; that is that relating to the making of "special contracts." In effect, undertakers will now be able, if the procedure outlined in the Bill is followed, to make arrangements for the supply of gas on such terms as they think fit and *with impunity*—that is to say, without fear of committing any breach of maximum price provisions in their Private Acts and Orders, and without jeopardizing their dividends if they are sliding scale or basic price companies. This removes the last excuse or reason for adhering to the flat rate method of charge, and it will, I think, be the duty of all of us to study ways and means whereby we can not only obtain new consumers, but increase the consumption per existing consumer, which is one of the most important things. We must not be buoyed up by an increase of business generally, but we must look at what we are getting per consumer. That is the tell-tale figure.

You will observe that I am in optimistic vein. Surveying the position as a whole, I feel that the intensified competition we are faced with—competition which is in many cases unfair—is doing us all a "power of good." It is true that it has disturbed our complacency and has shaken us up, but with faith and a fresh orientation, energy, and efficiency, we shall find the Gas Industry in the years to come yet more prosperous and more useful than it has ever been before.

Increased Subscription.

Mr. William Cash, seconding the resolution for the adoption of the Annual Report and Accounts, referred briefly to the various items in the accounts and pointed out that the credit surplus for the year was £55. Speaking on the general question of the revenue of the National Gas Council, he said that the Executives of the three bodies concerned had held meetings and unanimously came to the conclusion that the circumstances of to-day called for increased subscription. This was imperative and necessary in the view of the Executives, and it was suggested that the subscription should be increased to 10s. per million c.ft. in place of the existing subscription; and Mr. Cash ventured to hope and believe that everybody would agree that this was necessary and that the money would be forthcoming. Nothing had yet been done in the way of asking the members definitely if they were prepared to fall in with this view, but several important undertakings having heard of the proposal had at once agreed to it. It was particularly gratifying to know that the Gas Light and Coke Company was prepared to make this extra contribution. He said this because everybody was aware that the Gas Light and Coke Company were already spending large sums of money in the London national papers, all of which must be helpful to undertakings in other parts of the country.

A point which needed emphasis, perhaps among the municipalities more than the companies, was that the funds were not necessarily spent wholly in advertising to combat electrical competition. It did not need to be emphasized that the policy of the British Commercial Gas Association, for example, was to carry on propaganda which, although in a sense was directed to meet competition, was primarily aimed at increasing the use of gas and bringing about the proper use of gas, and, generally, the development of what was undoubtedly a commercial business. At the same time, the programme which could be carried out by the British Commercial Gas Association would depend upon the response which followed the appeal which was to be made for increased subscriptions, and when this appeal was sent out the reasons would be fully stated. When one looked at the report of the National Gas Council and the report of the British Commercial Gas Association and saw what was being done, it must be agreed that that work merited the additional support which the Executives felt was necessary at the present moment. After commenting upon the satisfactory nature of the figures from America, mentioned by the President, Mr. Cash briefly discussed the question of gas charges and the position in that respect in the electrical industry, quoting the following from the Sixth Annual Report of the Central Electricity Board:

"The Grid tariff has to be so fixed that, over a term of years to be approved by the Electricity Commissioners, the revenue receipts shall be sufficient to cover the revenue expenditure, including interest and sinking fund charges, with such margin as the Commissioners may allow. To facilitate still further the charging of low prices from the outset, the Board are empowered for limited periods to capitalize interest and suspend the annual provision for the repayment of money borrowed.

"The budget period, approved by the Commissioners, for the tariff for South East and East England and for North West England and North Wales, was, in each case, ten years, as were the periods previously approved for the tariff for Central Scotland and Mid-East England."

Continuing, he said, the following was the paragraph to which he wished to draw special attention:

"As pointed out in the Fifth Annual Report, a tariff of the kind prescribed, applied to a growing industry, connotes that, in the earlier years of a budget period, the outgoings may be more than the income, and that, in the later years, there will be surpluses sufficient to recoup the earlier deficiencies and leave a margin, the deficiencies being met meanwhile out of working capital. The demand for electricity in Great Britain is potentially so great that this policy of budgeting for losses in the early years of the first tariff period can safely be adopted."

Mr. Cash said that the Report set out the results of the Board's trading in two areas—namely, the Central Scotland and Mid-East England—and apparently the Board was pleased with the fact that on a revenue of £3,650,000 there was a surplus of only £4,320. That, however, was not all, because the Report went on to say:

"It will be seen from the Revenue Account (No. 5 in the Summary of Accounts appended hereto) that the Board's income has been sufficient to cover the whole of their operation and administration expenses in respect of those two areas and to leave a small margin to carry forward. The interest payments attributable to the capital expenditure have been made out of capital and the relative sinking fund charges mainly suspended."

Turning to the Capital Account, however, it was seen that the charge for interest on borrowed money paid out of capital during the year was £1,170,497. It was only fair, of course, to say that the Board was not operating the whole of the Grid and that these figures only related to the two areas he had mentioned, but apparently the policy of the Board was defined by the paragraphs he had read from the report, and he could not help feeling that if the shareholders of a company were addressed in that manner and were told that supply was being given at a loss in the hope that this would be made up in subsequent years, they would not be extraordinarily enthusiastic or eulogistic of the efforts that were being made. A great deal had been heard about cheap electricity, and it was quite obvious that the policy was deliberately to adopt a budget system by which the deficiencies of earlier years would be made up out of anticipated profits in subsequent years.

Mr. F. P. Tarratt supporting the motion for the adoption of the Report and Accounts, said it was difficult to imagine what the position of the Gas Industry would have been at the present moment if the National Gas Council had never been formed. Moreover, the work done by Sir David Milne-Watson, as Chairman of the Executive Board, had really been superlative, and his continued occupation of the Presidency was one of the strongest features of the work that had been done by the Council, which had received so much guidance and assistance from Sir David. In that connection they had only to recall the meeting held in December last to deal with the question of competition—and in some cases unfair competition—when the subject of increased subscriptions was mentioned. On that point, said Mr. Tarratt, he was very glad that Mr. Cash had taken them into his confidence and mentioned the decision of the Executives that the subscription should be increased to 10s. per million and that so many undertakings had already agreed to pay the extra subscription. As Mr. Cash had said, it was particularly gratifying that an important Company like the Gas Light and Coke Company, already spending very large sums of money on advertising which had its effect far outside London, should have expressed its willingness to pay the extra subscription; and, speaking for the Institution of Gas Engineers, Mr. Tarratt said it was the desire at all times to co-operate with the other national bodies, because it was thoroughly in sympathy with all that was being done. Any assistance which the Institution could give it was only too pleased to offer in its endeavour to serve the Industry.

Mr. Henry Woodall, speaking in support of the motion, pointed out that the Tottenham and District Gas Company had also agreed to pay the increased subscription of 10s. per million. Continuing, Mr. Woodall said that having been rung up at home at 10 o'clock the previous evening by Mr. Smith—after having had a long day at Ipswich—and asked to speak on this Report, he read it until midnight, and the result was a very disturbed night. He had had something of a nightmare and found himself driving a vehicle on compressed gas and chasing a rating surveyor;

and he was getting very near to his quarry when he suddenly found a hand held up and a very stern voice ordered him to stop. He did so, and looking up saw Mr. Ogilvie, who told him that he was going to attend to this matter of rating. He having replied that it was to be hoped that this would be done quickly because the rating position at the present time was very unsatisfactory. Many of those concerned with gas undertakings spent a great deal of time in dealing with their assessments which seemed to be based on no reason at all, so far as he could see, and if the National Gas Council could take steps to have the rating law systematized and properly organized, it would save a great deal of trouble and very often a considerable amount of expense.

Mr. Ogilvie had said that a great deal had already been done by the N.G.C., and he recalled that in 1929 an Act was passed which gave gas companies the power to invest some of their capital in acquiring other undertakings. That, however, said Mr. Woodall, while a very good thing in its way had rather queered his own pitch because he had something to do with a little Company which for over 100 years had been acquiring undertakings—namely, the British Gas Light Company—but now, as the result of the Act in question, great undertakings had come into his field and his market was rather spoiled, because they were able to do things which his own smaller Company could not, and to that extent they were rather stopping his activities! However, his long experience of the British Gas Light Company had been that when smaller companies were acquired by larger undertakings they secured very great advantages, and that was apparent in several directions.

Commenting on the utilization of compressed gas for road transport, Mr. Woodall expressed the opinion that it was unwise to suggest that compressed gas could do everything. It was a great mistake to suggest that it could do something until it was perfectly certain that it was thoroughly economic and sound, and those were the lines which he suggested should be followed in this particular matter.

Lieut.-Col. W. M. Carr, referring to the proposed increased subscription, said his impression of the meeting that was held in December was that it was the unanimous opinion that the additional work required from the national bodies called for additional subscriptions. In his view as a result of the December meeting there was a moral obligation upon every undertaking to pay at the increased rate mentioned by Mr. Cash. He urged that it was necessary for everybody to pay their full share if the Industry was to carry out the work which would have to be done in the future.

The President suggested that if it was regarded as the unanimous opinion of the present meeting that the contribution to the national bodies in future should be 10s. per million, the matter might be left there. That was what he desired, and it was probably not necessary that there should be a motion on the matter. The position would be very much stronger if it were simply agreed at this meeting that the contribution to the national bodies should be fixed at 10s. He inquired if that was the feeling of the Meeting.

The Meeting unanimously agreed to this.

Sir Christopher Clayton, C.B.E., M.P., J.P., proposing the re-election of Sir David Milne-Watson as President of the N.G.C. for the coming year, recalled that Sir David had been President since 1918 and that during the whole of that time he had been a tower of strength to the Gas Industry; indeed, not only a tower of strength but a leader who had helped in every possible direction. He could imagine, he said, that the Gas Industry could have no leader comparable with Sir David, and without further reference to Sir David's services to the Industry he would propose that he be unanimously re-elected.

Major G. H. Kitson seconded the proposal, which was carried with enthusiasm.

The President, in expressing his appreciation of his re-election, said that his heavy responsibility towards the Gas Light and Coke Company and other undertakings connected with it would lead him to ask to be relieved of the Presidency of the Council, but at the same time he felt it would be wrong to run away while it was the general desire that he should remain; and as long as he was given strength he would continue to do all he could for the Industry. He was bound to express his sincere thanks for the tremendous support he had been given, because it was impossible to act as President of such a body for such a long time without somebody differing from his views in some respects. The whole of the members of the Executive Board and of the Council generally had been wonderfully generous in making it easy for him to carry out the work of President.

Councillor G. E. Roberts moved the re-election of the Hon. Treasurer, Alderman Sir William Kay (Manchester); two Trustees, Alderman J. H. Lloyd (Birmingham) and Mr. J. E. Daw (Exeter); the Hon. Secretaries, Sir Francis Goodenough and Mr. W. E. Price, and the Auditor, Mr. Alfred Morland.

Mr. H. C. Smith seconded the motion, which was unanimously adopted.

Not Operated from London.

The President, proposing a vote of thanks to the Chairmen and Secretaries of the District Executive Boards, spoke in terms of high praise of the work which these Boards were doing, and emphasized the point that the National Gas Council was not an organization which was run from London. It was only by reason of the excellent work carried out in the provinces that the Council held the position which it did to-day.

Alderman Miller (Widnes) seconded, and the vote of thanks was unanimously accorded.

Mr. Samuel Tagg (Preston) briefly acknowledged the vote of thanks on behalf of the Chairmen of the District Boards.

Mr. W. Clark Jackson (Neath) replied on behalf of the Secretaries, and said that as long as the District Boards continued to receive the support of the Central Office in the way they did at present they could not fail to do good work.

The President proposed a vote of thanks to the Finance and other Committees of the Council, which was seconded by Alderman J. H. Lloyd and carried with acclamation.

Mr. John Terrace acknowledged the vote of thanks and regretted the loss of the services of Mr. R. Bruce Anderson on the Finance Committee after fifteen years' continuous service. His place, he said, had been taken by Mr. Sandeman, of Croydon.

The President, proposing a vote of thanks to the staff, claimed that no organization in the country had a better staff than the National Gas Council. He had been hurt, he said, at times when it was stated in the Press that the progress being made was not what it might be, but such statements were made by people who knew very little about it. If the Industry did not stand in the position which might be desired it was not the fault of the staff, for they had brains and enthusiasm and no end of working capacity. An instance of the manner in which the ability of the staff was recognized outside the National Gas Council was to be seen in the fact that Mr. Ogilvie had been elected Joint Secretary of the Conjoint Conference of Public Utility Undertakings which included not only representatives of gas undertakings but of electricity and water undertakings. In Mr. Fottrell they had a Manager whose technical knowledge was of the greatest possible value, and, finally, in Mr. Smith they had the ideal Secretary.

Mr. Henry Woodall seconded the vote of thanks which was carried with acclamation, and Mr. Ogilvie briefly acknowledged.

Society of British Gas Industries

ANNUAL MEETING AND DINNER

The Annual Meeting of the Society of British Gas Industries was held at the Hotel Metropole, London, on Wednesday, May 9—the Rt. Hon. Earl FITZWILLIAM, K.C.V.O., the President, in the chair.

The minutes of the last annual meeting having been confirmed and signed, the Council's Report for 1933-34 was presented by Mr. H. E. Bennet, M.C., Chairman of the Council.

REPORT OF THE COUNCIL FOR 1933-34.

The Council begs to present to the members its Twenty-Eighth Annual Report on the work of the Society, and in the first place has to record with regret the death of the following members:

Harry J. Donkin, Director, the Bryan Donkin Company, Ltd.
Thomas Sanderson, Director, Sydney Flavel & Co., Ltd.
Reginald W. Foster, Senior Partner, E. Foster & Co.
A. W. Ranken, Senior Director, Aldridge & Ranken, Ltd.
T. B. Townson, Director, Townson & Mercer, Ltd.
E. Lloyd Pease, Chairman, Ashmore, Benson, Pease, & Co., Ltd.
W. Newton Drew, Chairman and Managing Director, Newton, Chambers, & Co., Ltd.
Sir Harris Spencer, K.B.E., Chairman, John Spencer, Ltd.
D. R. Myers, Partner, E. Foster & Co.

The Society wishes to offer congratulations to the following gentlemen:

The Rt. Hon. Lord Weir, G.C.B., on the conferment upon him by His Majesty the King of a Knight Grand Cross of the Order of the Bath.

Sir Robert Hadfield, Bart., F.R.S., on the conferment upon him by the King of Italy, the Decoration of Commendatore of the Order of the Crown of Italy in recognition of his Scientific work.

Mr. R. J. Rew on his appointment as Sheriff of the City of Exeter.

The Society is much indebted to its Immediate Past-President, the Rt. Hon. L. S. Amery, M.P., for the very able and valuable address he presented at the Annual Meeting in May, in which he dealt with "The Problem before the World Conference."

Visit to Canada and the United States of America.—A number of the members of the Society, under the leadership of the Chairman, joined the Institution of Gas Engineers' party which visited Canada and the United States of America during September and October. They were present at the Annual Conventions of both the Canadian Gas Association at Ottawa and the American Gas Association at Chicago, and many new friendships were formed on both sides; the visit was fully reported in the Chairman's Address at the Autumn Meeting of the Society, and was an unqualified success from every viewpoint.

B.I.F., Birmingham, 1934.—Gas Industries Section.—The Gas Industry was again well represented by a special section in the centre of the Fair Buildings, organized by a National Committee, of which Dr. E. W. Smith, C.B.E., again acted as Chairman. The Society was represented on this Committee by one member from each of its Sections. The great majority of the individual exhibitors were members of the Society, and it is interesting to note that the open type of stand, of which the Gas Industry was the pioneer, is now becoming increasingly popular, and has been very widely adopted outside the Gas Section.

The Society assisted in the lighting of a length of about 300 yards of roadway on the north side of the Fair, which will form part of the ultimate circular road round the Fair. Several members of the Lighting Section co-operated in the matter and their support is much appreciated. The road was used by all visitors leaving the official car parks, and the excellence of the illumination was much commented upon.

The Joint Industrial Exhibit arranged by the British Commercial Gas Association was repeated this year, and the Gas Industry "Information Bureau," provided by the Heavy Section members of the Society in conjunction with the British Commercial Gas Association, was again a prominent feature.

The Joint Gas Conference took place in the second week of the Fair. Sir Francis Goodenough, C.B.E., was President this year and delivered a presidential address. Dr. E. W. Smith, C.B.E., gave the address on the second day on "The Place of the Gas Industry in our National Economy." The attendance at the Conference was excellent.

The Society is very much indebted to the Birmingham Corporation Gas Department for their co-operation and support, and to Mr. W. L. S. Spinks for his services as Hon. Secretary.

Chemical Engineering Congress.—World Power Conference.—An International Congress on Chemical Engineering is to be held in London in the Autumn of 1935, and the Society will take an active part in it.

British Standards Institution.—The Society is co-operating with the Institution and is represented on the following Committees:

The drawing up of rules for evaluation of efficiency and performance of plant in which fuel is employed or treated.

The preparation of a British standard specification for hydro-extractors in chemical works, gas-works, dry cleaning works, laundries, &c., which has been set up at the request of the Home Office.

The preparation of a British standard glossary of terms used in the Gas Industry.

Institution of Gas Engineers.—The Joint Lighting Committee has drawn up a specification for inverted mantles with a view to its adoption as a British Standard by the British Standards Institution.

Manchester Agreement between the Members of Section 1 and the Amalgamated Union of Building Trade Workers.—Negotiations are in progress with the Federation of Gas Employers and with the Amalgamated Union of Building Trade Workers regarding certain points of interpretation that have arisen in regard to the agreement, but no conclusion has yet been reached.

THE PRESIDENT.

THE RT. HON. EARL FITZWILLIAM, K.C.V.O., C.B.E., D.S.O., LL.D.

Earl Fitzwilliam has for long been closely identified with high-temperature carbonization, and is the owner of a very large plant in the South Yorkshire Chemical Works. He was one of the initiators of the Gas Grid in South Yorkshire, and sends 5 million to 6 million c.ft. of gas per day to Sheffield and surrounding towns. He has been responsible for a great deal of experimental work with regard to the production of oils from shales at low temperature. His experiments with regard to oil from coal were interrupted by the war in 1914. Earl Fitzwilliam was extra A.D.C. to the Viceroy of India (The Marquis of Lansdowne) from 1893-4; Member of Parliament for Wakefield, 1895-1902; served with the G.H.Q. Staff in the South African War, 1900, when he was awarded the D.S.O. He was Lord Mayor of Sheffield in 1909, and acted as Departmental Assistant to the Director of Transport at the War Office from 1914 to 1917, receiving the C.B E. in 1919. Earl Fitzwilliam is Deputy-Lieutenant and a Justice of the Peace of Co. Wicklow and LL.D. of the University of Sheffield.

London Chamber of Commerce.—The Household Appliance Section Committee asked for representation from the Society in respect to kitchen utensils, including gas cookers, being supplied in certain standard colours. The matter having been investigated, it has been pointed out that the gas cooking appliance in colours, which are being supplied by the different manufacturers, generally covered the suggestion made by the Household Appliance Committee.

Refractories.—In collaboration with the Joint Committee on Refractories, Section 10 has been much occupied during the last

year in re-drafting the new standard specification for refractory materials for gas-works, set up by the Institution of Gas Engineers. The amendments suggested have been approved by the Joint Committee and sent to the Institution Council for their final approval.

It is satisfactory to report that the endeavours of the Council with regard to the British Refractories Research Association have borne good fruit. The Association is now in good condition and doing valuable work, and is about to install new and specially arranged premises at Stoke-on-Trent to enable it to cope with further and more extensive work, to the benefit of the gas trade and the refractories industry generally.

Careful attention has been given to the work of other Societies on refractories, and particularly so far as it affects the Gas Industry.

Coal.—It may not be out of place to offer a general observation on the working of the Coal Mines Act, 1930, of which several years' experience are now available. Coal owners themselves would agree that although the rosy prospects first held out have not been realized, they have undoubtedly benefited, and distributors, although having to cope with new and increased problems arising out of quotas and other matters, have not unduly suffered, while consumers and the public in general should feel that any inconvenience regarding the availability of their particular grade of coal or slight increase in price has been amply compensated for by the immunity from strikes to which the working of the Act has certainly contributed.

French Import Quotas.—At the request of the Board of Trade, the Society is acting as the body to issue Quota Certificates in respect of certain gas apparatus for importation to France in accordance with the regulations of the French Government.

City and Guilds of London Institute.—The prizes in the City and Guilds of London Institute in the recent Examinations in Gas-Works Practice, Gas Supply Practice, and Gas Fitting have been duly awarded and announced in the Technical Press.

Special Fund.—The Council is gratified at the response to the appeal made at the end of last year for more support for this fund, and hopes all members will see their way to become regular subscribers.

Membership.—The membership of the Society is steadily increasing, nine new firms having joined during the period under review. The entrance fee has been waived during the year 1934, and it is hoped all members will do their best to introduce new members and thus strengthen the Society.

The Society wishes to accord its best thanks to the Rt. Hon. Earl Fitzwilliam, K.C.V.O., for his able and valuable services as President during the past year, and is gratified that on his retirement he has been pleased to accept the office of a Vice-President.

It also desires to place on record its best thanks to Mr. H. E. Bennett, M.C., Chairman of the Council, for his interesting Address, "Notes on the Visit to Canada and the U.S.A.," at the Autumn Meeting in November.

The Council has much pleasure in announcing that Sir John Cadman, G.C.M.G., D.Sc., has accepted the Presidency of the Society for the coming year.

On behalf of the Council,
H. E. BENNET,
Chairman.

GAS SECTION AT B.I.F. TO BE ABANDONED.

Mr. BENNET referred to the altered date of the Birmingham section of the British Industries Fair, and stated that the change had been carried through without proper reference to the organizers of the Gas Industries Section. It was felt by the majority of the exhibitors in this Section that May was an inconvenient month from the Gas Industry's point of view. For one thing, the weather was too warm for the display of gas exhibits in the buildings as they existed at present at Birmingham. Further, the Industry found it would be impossible to arrange the Joint Gas Conference in conjunction with the exhibition by reason of the Annual Meeting of the Institution of Gas Engineers following at the beginning of June. In view of the fact that the date was unsuitable, the Gas Industries Section Committee, under the Chairmanship of Dr. E. W. Smith, met to consider alternative space at Olympia. The space available, however, was found to be most unsuitable, and it was therefore decided not to continue with the Gas Industries Section either in London or in Birmingham. The Council of the Society at a meeting that day were unanimous in their support of that Committee's decision.

Mr. D. W. TURNER seconded the adoption of the Council's report for 1933-34, which had been moved by Mr. BENNET, and in doing so he emphasized that it was impossible to represent in the report the large amount of work which had been put in during the year by the Chairman and Council, for it must be kept on very general lines. He felt that the adoption of the report would commend itself to everyone in the room.

Mr. R. J. MILBOURNE, J.P., said that it was satisfactory to note that the Society was acting as the body to issue Quota Certificates in respect of certain gas apparatus for importation to France, and inquired what apparatus were involved. He also asked why, in view of the importance of the matter, mention had not been made in the report to the Silver Medal awards to the Junior Gas Associations.

The SECRETARY (Mr. A. L. Griffith), in reply, stated that lamps, gas burners, fires, radiators, cookers, and water heaters were the only appliances to which the Quota Certificates applied at the moment. As regards the Silver Medals, he said that the papers sent in had not been adjudicated when the report went to print.

The resolution for the adoption of the report was then put to the meeting and carried unanimously.

Dr. E. W. SMITH, C.B.E. (Hon. Treasurer), then moved the adoption of the accounts for the year 1933. He remarked that the Society was run on a subscription of ten guineas per member, this being the sole source of income to meet ordinary expenditure. On that basis there was a debit balance of £2 3s. 10d.; but it was the policy of the Council to see that they were down on that particular account. It had been mentioned in the report that the Special Fund had received a great deal more support, which was very encouraging, and enabled the Council to take a more active part in the affairs of the Industry. They were hoping that this was only the beginning and that the Special Fund would be much greater next year. Occasionally items were transferred from the normal account to the Special Fund, which enabled the Council to increase specialized expenditure, which was non-recurrent, and charge it to the Special Fund. In future years, although there would not be the item in the Special Fund on account of the British Industries Fair, there would not actually be a saving of this amount by reason of the fact that if they did not take part in the Fair they would have to extend their activities in other directions.

The resolution for the adoption of the accounts was seconded by Mr. E. J. DAVISON, M.I.Mech.E., and carried unanimously.

PRESENTATION OF SILVER MEDALS.

Mr. BENNET remarked that last year the Council had unanimously decided to offer an award of a silver medal for the best paper contributed during the year by members of each of the Junior Gas Associations, so as to give encouragement to the younger members of the Industry. From letters they had received, the offer of the medals had given much satisfaction to the Junior Gas Associations and was appreciated by them. On the present occasion five of the Associations sent in papers, which were excellent and of a high quality.

The PRESIDENT then presented silver medals to the following:

Mr. F. A. Rhead (Manchester and District Junior Gas Association), "Carbonization with 103-in. Vertical Retorts."
Mr. F. L. Atkin (Midland Junior Gas Association), "The Design of Town Gas Fired Furnaces."
Mr. H. J. Risby (London and Southern District Junior Gas Association), "Some Aspects on the Heating of Horizontal Retort Settings."
Mr. A. Marsden (Western Junior Gas Association), "The Distribution of Ash in Coal and Coke."
Mr. A. D. Howells (Wales and Monmouthshire Junior Gas Association), "The Application of Gas to the Tinplate and Sheet Industries."

ELECTIONS TO COUNCIL.

The PRESIDENT next announced the following elections to the Council as representatives of the various sections:

Mr. Francis B. Richards, M.B.E.	Section I.
Mr. Leonard Hartley	,, II.
Mr. Charles S. Bennett	,, III.
Mr. W. H. Handley	,, IV.
Mr. Albert J. West	,, V.
Mr. R. J. Rogers	,, VI.
Mr. Philip H. Sugg	,, VII.
Mr. George Ewart	,, VIII.
Mr. A. B. Balmford	,, IX.
Col. Alan Stein, M.C.	,, X.
Alderman George Clark, J.P.	,, XI.
Mr. T. Alborn Clapham	,, XII.
Mr. B. B. Waller	,, XIII.
Mr. A. J. B. Atkinson	,, XIV.
Col. O. B. F. Planck, D.S.O., D.L.	,, XV.

THE NEW CHAIRMAN.

Mr. E. J. FOX, in moving the election of Mr. Douglas W. Turner to the Chairmanship of the Council, said that the Council felt gratified that Mr. Turner had found it possible to find the necessary time to devote to presiding over their Council during the coming year; and they felt that the Society could not have succeeded in finding a more suitable Chairman of the Council to follow Mr. Bennet. He liked personally to take pride in having been primarily responsible for persuading Mr. Turner to devote a few extra hours in London in order to interest himself in the important work which this Society was carrying on. He expressed

the hope that Mr. Turner would derive much pleasure from his work for the Society, as he himself had done.

Col. O. B. F. PLANCK seconded the resolution, which was unanimously agreed to.

Mr. TURNER, in acknowledging his election, thanked Mr. Fox and Col. Planck for what they had said, and remarked that he regarded it as a very great honour which they had bestowed upon him. At the same time he could not help feeling that there were many in that room who had a wider knowledge of the Gas Industry and its problems, and who would have fulfilled this position better than he could. He appreciated that the work of the Society was becoming more and more important, and he assured them that he would do his best to carry out his duties to the advantage of the Society and the Gas Industry as a whole.

RE-ELECTION OF OFFICERS AND COUNCIL.

On the proposition of Mr. H. E. BENNET, seconded by Mr. F. B. RICHARDS, Mr. D. M. Henshaw was unanimously elected Vice-Chairman of the Council, and in acknowledgment he said that he appreciated the honour very much indeed.

Mr. R. J. MILBOURNE moved the re-election of Dr. E. W. Smith as Hon. Treasurer of the Society, remarking that every member was acquainted with Dr. Smith, who was well-known throughout the Gas Industry both at home and abroad. He was the possessor of a fine assemblage of good qualities in addition to his abilities in other directions; and as this proposition meant the retaining on the Council a man of Dr. Smith's calibre, he was sure they should willingly and gladly take the opportunity of supporting it. The manner in which he had just dealt with the accounts indicated his ability in the capacity of Hon. Treasurer of their Society.

The proposition was seconded by Mr. R. J. ROGERS and carried by acclamation.

On the proposition of Mr. F. C. TILLEY, seconded by Mr. PHILIP H. SUGG, Mr. F. J. Gould was re-elected Hon. Secretary; while on the proposition of Mr. D. M. HENSHAW, seconded by Mr. T. F. C. POTTERTON, Mr. H. E. Bennet and Mr. H. M. Thornton were appointed elective members of the Council.

Mr. Ernest West, Mr. E. J. Fox, and Mr. E. J. Davison was also re-appointed elective members of the Council on the proposition of Mr. CYRIL G. DAVIS, seconded by Mr. F. J. GOULD.

It was moved by Mr. ALBERT J. WEST, seconded by Mr. ALEXANDER COMLEY, and unanimously agreed, that the Society's Auditors—namely, Messrs. Cash, Stone, & Co.—be re-appointed for the ensuing year.

On the proposition of Mr. CHARLES CLARE, seconded by Mr. C. A. GOODALL, a hearty vote of thanks was accorded to the Council for their services during the past year; while a similar vote to the Hon. Treasurer, Hon. Secretary, and Secretary was accorded on the proposition of Mr. H. E. BENNET, seconded by Mr. B. B. WALLER.

Presidential Address

Of The Right Hon. Earl FITZWILLIAM, K.C.V.O.

I have no hesitation in flying in the face of convention or that great and powerful tenet " A good soldier never looks back " to make a superficial survey of the home of our Gas Industry, in order to see if there are any lessons to be learnt from it.

It is only a very few years since the British nation was by far the greatest manufacturing, exporting, and ship owning country in the world. This state of affairs was not due to our possession of a mineral wealth beyond that of all other countries, as, apart from our limited resources of excellent coal, our native ores, few in number, are among the leanest to be worked in the world, but to the fact that our resources were developed and put to good use before those of other countries. This earlier development was made possible by our pioneer inventors, engineers, and scientists—Watt, Stephenson, Murdoch, &c. New industries sprang up in many directions, and as is usual with something new, unless it be a pastime, they met with hostile receptions, for in the minds of the people they spelt ruin.

During this period, which may be called the world mechanization period, new mineral wealth far greater and richer than our own was being revealed in all parts of the world, and as these regions became populated and developed they also became the natural source of supply for the markets to which our own products had found an outlet. During these periods the partly developed countries entered the field with their goods, and once having got their foot in they stayed. In this country we have always, whatever may be said to the contrary by our detractors, maintained a comparatively high standard of living, and as the world's markets became more and more competitive it has become increasingly difficult to wrest a living from the supply of minerals and manufactured goods to foreign countries. Of late years this difficulty has developed at an ever growing rate for, as the foreign countries came into production and then competition, the volume of trade for which there had been a market for our goods became less and less. So long as there exist highly developed countries possessing native resources, in which the rates of pay compared with our own are so infinitesimal as to amount to virtual slavery, we will be at a decided disadvantage notwithstanding the strenuous efforts of our so loyal colonies and dependencies to maintain a demand for our products. Despite our justifiable claim to the maintenance of a standard of quality superior to any other, we must not forget that, while the world at large will always take the best if it is lowest priced, the bulk will take the lowest priced whatever the quality without reference to the country of origin.

It is questionable if this country could ever have been of any moment in the world had it not been for our excellent coal, which not only permitted us to develop our other minerals, but added materially to our wealth by the purchasing power derived directly or indirectly from its export. It is certain that our social amenities would be on a very much lower grade were it not for our coal, and to mention only one of our chief home comforts which is so dependent on coal I would refer you to gas. I will not weary you with a recapitulation of the early history of gas making, nor the way in which the pioneers were ridiculed, scorned, and held to be allied with the devil, nor detail the individual hopes, failures, and successes which have led to gradual and continuous development of the Gas Industry until to-day it employs some £200,000,000 of capital, directly uses some 20 million tons of coal per annum, and directly employs some 115,000 men, ranging from the day labourer through the scale to the highest trained technicians, scientists, and managerial brains.

GAS GRIDS OF THE FUTURE.

Speaking of the Gas Industry brings to my mind the rapid development of the manufacture of gas by the coke oven industry. A generation ago practically all the gas resulting from the manufacture of metallurgical coke was utilized for the manufacture of that coke, but to-day we find that the technique of coal carbonization has so developed that the highest efficiencies are obtained, thus making it possible for large quantities of gas to be available for purposes other than heating the ovens. This gas is often referred to as surplus gas, and I have even heard it referred to as being of no value. It has taken many years to make people realize the value of this gas to the Gas Industry and the industries of the country generally. What with Governmental restrictions and legislation one almost despaired of ever being able to dispose of this valuable fuel. As you know, there is in existence in the South Yorkshire area a gas grid scheme, in which I am personally interested. I am certain that this scheme will greatly benefit the industries within reach of its operation, and I look forward to the formation of similar schemes in other parts of the country and the possible linking up of one huge system. The future of the coal industry lies in the more scientific utilization of coal.

In speaking of the carbonizing industry, the man in the street does not realize its vital importance to so many of our staple industries, but is apt merely to think of it as a source of cheap fuel for his immediate creature comforts. To enumerate a few of these industries I would quote iron and steel, transport, agriculture, chemical, dye, pharmaceutical, and indirectly so many others.

UNREASONABLE COMPETITION.

This brings us to the point of competition we meet and must, in the nature of things, face. Whereas a very few years ago we looked upon coke ovens as competitors to the Gas Industry, to-day we do not take the same view, for after all our prime motive in life is to provide the public with an unfailing supply of excellent and cheap fuel and light which for reliability, cheapness, and ease of control has no equal.

For some time past I have noticed in the Daily and

Technicals Papers an acrimonious controversy on the merits and demerits of gas and electricity. There appears to be a regular feud between these two industries, and looking at it from the point of view of the man in the street it is regrettable. If it is purely a question of competition between two rival industries for the supply of their products, then they should be given a fair field and no favours should be granted to either party. It must be remembered that electricity is used only as a source of power, heating, and lighting without any other useful bye-products, and if one compares the two industries on the basis of the consumption of coal per British Thermal Unit of useful energy supplied to the consumer, we find that the electrical industry is a very long way behind.

I would not say that gas has never failed, but I certainly have never experienced a gas failure, nor have I experienced a partial failure due to pressure drop such as so frequently and irritatingly happens with electricity. I have never heard of a gas supply being cut off in a whole village, town, city, or district because some sparrow, mouse, rat, cat, or drop of rain found its way into some spot where it should not have been, neither have I heard of a whole gas-lighted district being plunged into darkness because the velocity of the wind was high or perhaps because there was a heavy fall of snow such as would bring down the overhead wires. Despite the outcry of the danger to aviators, I have never read of a gasholder being struck by an aeroplane, but I have read of many planes having struck overhead cables, &c. One often hears of suicide by gas poisoning, but I have read of only one suicide by electrical contact. I can only think that this is due to the would-be suicide's belief that just as he was going to make the attempt the current would fail.

It is grossly unfair that, in addition to a subsidy of many millions, to which we have contributed in no small measure, the electrical industry should be so legislated for that it is put in an advantageous position as compared with ourselves, who have developed along our own lines without any such assistance. Why is it permitted a freedom to arrange a scale of charges which is denied to us? It is definitely certain that if we were allowed a reasonable margin of freedom we would be able not only to increase considerably our make, but to reduce materially the charges to both small and large consumers. This surely is the direction in which authority should assist us to move.

I can only think that the present position is in some measure due to the lack of solidarity in the Gas Industry, and it behoves everyone who has its best interests at heart, whether he be employer, shareholder, gas consumer, ratepayer, manufacturer of equipment, or employee thereof, to raise his voice above the electrical cackle and drown them in their own verbosity without recourse to their methods.

Uninterrupted Progress.

It will be noted that the one outstanding fact is the almost uninterrupted progress of the Gas Industry to this present day, and there has never been a year when all seemed lost as has happened so frequently to almost every industry in the country. These conditions may, in the main, be attributed to two factors—first, the relations existing between the Gas Industry and its employees, and, secondly, to the all-important fact that the Gas Industry is, despite its growing bond with industry generally, a purely domestic, as opposed to international, requisite, and until recently suffered only from repressive legislation and control.

This state of affairs has been altering for some few years owing to the progressive methods adopted by the electrical industry, until at the present time gas feels that it is being subjected to grossly unfair competition in the domestic field. It is easy to be wise after the event, and there is every excuse for us not realizing that the enormous sums by which the National purse subsidized the electrical scheme would be used against us in an unfair manner or that we would be debarred from developing along the same lines at our own expense.

It is always much easier to note the defects of a system than it is to suggest a ready solution to the difficulties. It would, however, appear to be obvious that the removal of all deleterious substances and those calculated to injure health or property from the fuel before combustion is a step in the right direction. This at least is done by the Gas Industry when they remove the sulphur from the gas before it is boosted to the districts; but the same cannot be said generally for the coke they dispose of, although they can claim that the whole of their fuel is smokeless.

If one is to give credence to even a fraction of the estimates quoted by experts as to the damage done to property in this country by the emission of sulphurous fumes, it will easily be realized how vital to the country is the supply of the cleanest possible fuel.

It is all very well to say we must have clean coal and receive the unqualified agreement of the coal industry that clean coal is the most desirable commodity; but it must be remembered that there are very few people so honest as to say that they are willing to pay at a rough estimate 1s. per ton extra for their coal in order that their neighbours' property and health may not be injured, for, after all, the grit and fumes usually fall outside the area of their maker.

Coal Cleaning.

The mention of clean coal naturally reminds one that all coal is not clean even in the lump, and there is, in addition, a small proportion of adherent and loose dirt which, when considered in the light of the conditions under which it is won, is remarkably small.

If special cleaning equipment by way of wet or dry washery has to be installed to attain the desired freedom from ash and dirt, the cost of the coal per ton as bought at the pit must obviously be higher. But to the Gas Industry there are definite advantages in that the volatile content is higher and the residual coke is cleaner and therefore more in demand at a higher price.

I have often thought, as a coal owner, that the Gas Industry has accused and still does accuse the coal industry of overcharging them for their coal which amounts to approximately 9% of the total coal mined.

While the Gas Industry was at one time dependent entirely upon coal for its process, this is no longer the case, as approximately some 200,000 tons of oil were used last year to the detriment of the coal industry. It may be rightly argued that this use of oil is brought about by the necessity to reduce the amount of coke placed on the market; but, on the other hand, it has been obvious that the coke used domestically has increased enormously.

In the light of the present day wish and aim for smokeless fuel, it would appear that the Gas Industry has been losing an opportunity of making its own market by educating the public to the advantages of its smokeless fuel.

The cleaner coal to which I previously referred would have the added advantage of reducing the atmospheric pollution by the removal of the so injurious sulphur compounds for which the ash and dirt are in no small measure responsible.

An Internal National Institution.

I look upon the Gas Industry as an Internal National Institution which, though it plays its part in our Industrial Life, is not subject, in the main, to foreign competition and should therefore as far as ever possible purchase the whole of its requirements at home.

The quantity of oil used by the Gas Industry makes one wonder if it would continue to use coal in any form were it able to produce gas cheaper by some oil, shale, or other process. The Gas Industry itself is subject to competition from the electrical industry, and the proposed smokeless fuel industry may be regarded by some as an added competitor.

With regard to the electrical industry it can be said that for the B.Th.U. value given to the domestic consumer they are very much better clients of the coal industry than is the Gas Industry. It is perhaps not far from the truth to assume that, for purposes of lighting and heating generally, gas and electricity give equal value per B.Th.U.; but if we analyze the cost to the consumer we find an enormous disparity. If we assume the charge for electricity to be at the rate of 2½d. per electrical unit of 3,415 B.Th.U. and the charge for gas at 3s. per 1,000 c.ft. of gas of 500 B.Th.U. per c.ft., or 500,000 B.Th.U. in all, we find that if we wish to charge for gas at the same rate as for electricity per B.Th.U. we would have to raise the price of gas to 30s. 7d. per 1,000 c.ft. or more than ten times as much.

It surely cannot be such a difficult task to convince the British public, who are so ready to buy the lowest priced, even though foreign, despite our making the best, that it is making a colossal blunder in going electricity mad to the detriment of their patience, pocket, and purse. The first item is easily demonstrated by the boiling of a kettle of water on an electrically-heated plate compared with a gas ring. The advantages of electricity should be honestly admitted, as they are so infinitesimal as to be, for all practical purposes, negligible when compared with the very material advantages of gas.

The demand for various seams, sizes, and qualities of coal has varied enormously during the past twenty years or so, and it is highly probable that the insistent demand from authoritative quarters for the elimination of smoke will lead to further changes in the demands made upon the coal industry to supply the needs of a new smokeless fuel industry which is growing up. As I visualize this new venture I find it difficult to see why the control of this new industry should pass out of the hands of the coal industry, as it is obviously one brought into being to replace the existing domestic coal supply.

In the light of the more harmonious conditions now existing between the various carbonizing sections, I do not foresee any difficulties arising between them, though it is obvious that the coincident increase of bye-products would be bound to have some influence on the ruling prices even though the quality of the tar and oils recovered vary from those of normal carbonization.

If, as seems highly probable, there is required for carbonizing purposes only about half the gas produced per ton of coal, there would be for disposal to the Gas Industry some 840 millions of therms of 600 B.Th.U. gas based on the assumption that 40 million tons of coal were carbonized.

Domestic Smokeless Fuel Demand.

There are those who say that if the domestic consumer now uses 40 million tons of coal there would be required a similar tonnage of smokeless fuel, in which case some 53 million tons would require to be carbonized with a resultant increase in the gas available for disposal. Against this there are the exponents who claim that the manufactured smokeless fuel gives out from 25% to 30% more heat when burnt under normal firegrate conditions, so that for equal room temperatures there would only be required the product from the original 40 million tons of raw coal.

A study of the balance-sheets published during the past few years, not only by the optimistic patentees, option holders, share pushers, &c., but by that small portion of the smokeless fuel industry which has managed to hold its head above water, clearly indicates that it is necessary to sell the fuel at a price *ex*-works much higher than that at which one can purchase first-class house coal *ex*-colliery.

If this state of affairs obtains at a time when it is possible to choose freely the raw coal from among the best coking slacks at their present-day comparatively low prices, is it to be assumed that if the demand grows from about 200,000 tons as at present to 40 million tons per annum, will it be reasonably possible to obtain that coal at anything approaching its present low figure? I venture to suggest that such a contingency is not possible.

However that may be, it seems certain that the Gas Industry would be assured of an ample supply of excellent cheap gas, which would at least have the merit of stabilizing the Industry and removing from its ramifications many of the vexing and perplexing tasks with which it is now saddled by the fluctuating prices of all resultant products other than gas, and by the ever-present theme of whether to sell or store against a rising market and if to store, where and how, and finance of storage.

Having been relieved of the worst side of gas making the Industry could settle down to the uninterrupted study of the most expensive of its duties with a view to the further reduction in gas price to the advantage of the consumer. I refer to gas distribution. As this side of the business is made up of so many phases varying in both number and degree according to the works one might choose, I will speak no more of it.

Another venture that has of late come into being in this country which augurs well for our coal supply is the hydrogenation of coal, and I believe that this, like the smokeless fuel industry, is based for its success upon the securing of endless millions of tons of cheap coal.

The manufacture or production in this country of any commodity which will obviate the purchase of material abroad is a very desirable and laudable aim despite the upraised voices of those who may have their money invested in the outside producing and carrying concerns, as it will obviously result in the greatest good to the nation as a whole whether viewed from the standpoint of employment or the safeguarding of our oil fuel resources in the event of war. It is a debatable point whether in the event of war it would be better to ensure our oil rather than our spirit supply.

In view of the estimated requirements of these two protracted new industries in the next few years, is it reasonable to suppose that their needs for cheap clean fuel at present prices can be met by the coal industry? It is impossible, and the natural sequence will be a gradual hardening of slack prices with a possible reduction in large coal prices though the controlling influences are wide and varied.

The Gas Industry's Course.

There emerges from this the one clear course for the Gas Industry, and that is to secure, wherever possible, the available supplies of cheap gas from the existing and protracted carbonizing industries. I use the word "cheap" advisedly, for I do not think it will ever be cheaper.

The building up of these two new industries will, by reason of their need for new equipment and apparatus, give employment to thousands of men, thereby relieving the national and local taxation imposed upon the manufacturing firms. This reduction in overheads on an increased turnover is bound to lead to reduced working costs, which, in their turn, increase the prospects of the manufacturers recapturing some of their lost export trade.

I do not feel I am anticipating scientific industrial progress when I say that to these two industries there will soon be added another vital link in our self-supporting chain by the establishment of processes for the conversion of certain constituents of coal gas and its derivatives easily and cheaply into useful liquid hydrocarbons of low boiling point.

As expansion and development are synonymous with any reference to the carbonizing industry, it naturally follows that there is a continuous stream of new apparatus and equipment required for the invention, development, and supply of which we are so well favoured by a number of constructional firms of world-wide repute, who are not only keenly alive to the need for improvement but are lavish in time, money, and effort to be first in the field both here and abroad, and to whose energy, industry, and acumen there are erected in all parts of the world innumerable monuments of such size that they dwarf the surrounding habitations and factories.

To the coal industry we appeal, not in vain, I hope, for an ever cleaner coal, so that we may place upon the domestic market a fuel which will be readily and willingly accepted into every household as a desirable requisite from all points of view—and one which has the added advantage of being smokeless, so that we may anticipate the legislation which so many feel sure is bound to come, if not in the immediate then in the not far distant future.

Research.

There is also the question of research, and, while the industries of this country are fully alive to the importance of research, I do not feel there is the co-operation and understanding there should be on this vital problem. I would like here to take the opportunity of expressing my appreciation, and also that of the carbonizing industry, of the wonderful and valuable work done by H.M. Fuel Research Board, through the Director and staff at the Fuel Research Station. I am rather afraid that a great amount of the work done at the Station has not been appreciated to the fullest extent, and I hope that the Society of British Gas Industries will take notice of this fact and support such research to the utmost of its ability.

Although I have no wish to be prophetic, I feel that I would be remiss in my duty if I failed to pass on to you the spirit of optimism which I myself feel regarding the future of our national welfare, not merely industrially but in the affairs of nations in which we will continue to take the leading part as one to whom all other nations may look for a square deal and a helping hand in their time of need.

That you may continue to labour in the cause of progress both within and without your Institution for the well-being of our nation is the devout wish of your President.

Vote of Thanks.

Proposing a very hearty vote of thanks to their President for his address, and for his services to the Society during the past year, Mr. H. E. Bennet said that Earl Fitzwilliam had not merely sat by as a spectator, but had taken a lively interest in the work of the Society. His address gave them much food for reflection; and it was interesting to know that Earl Fitzwilliam had a very close appreciation of the difficulties of the Gas Industry in regard to competition. His address—if he might say so—indicated a very analytical mind. Their President had taken a great deal of trouble on their behalf, and the least they could do was to afford him a very hearty vote of thanks.

In seconding the vote, Dr. E. W. Smith remarked that the policy of the Society had been to invite representative gentlemen of the highest degree from the outside world to be Presidents, and there could be no doubt that this policy had been confirmed that day. Their President had rich experience as a coal and coke oven owner and one who supplied large quantities of coke oven gas in the Sheffield area. The Gas Industry was reputed to have antipathy to the use of gas from coke ovens. But the development of the past three or four years indicated that such prejudice was dying. Coke oven gas was in all respects equal in quality to town gas, stated Dr. Smith, and could be readily utilized. Coke oven owners who had gas available appreciated the difficulties of individual towns taking their whole supply from such ovens. There had been in the past sad experiences of breakdowns. They were not likely today; but when these gas undertakings were municipally controlled and the engineer had to take full responsibility for anything that might be done, it was natural and inevitable that the managements of such undertakings should prefer to take their gas from a grid than from an individual coke oven plant. There would not be any doubt, he thought, that in the future coke oven gas would be used

more extensively for town purposes if it were available from grids supplied by more than one coke oven plant.

A Lack of Solidarity.

Their President's address had heartened them in more respects than one, although it had indicated a lack of solidarity within the Industry. That was a strong expression; there were a large number of individual entities in the Industry, and they were beginning to see how important it was for them to work together. Until the Industry and their Society worked with solidarity—working loyally for the Industry and the Society—they would not get very much further. In his address the President had commended the Government Fuel Research Board, and that was a lead they should all follow. They should realize the value of the work they were doing at the Research Station and support them. In conclusion, Dr. Smith said he would like to congratulate themselves on the fact that their President had been good enough to bring with him one of his chief lieutenants, Mr. Hebden, of whose sympathetic knowledge of the requirements of the Gas Industry they all knew.

The vote of thanks to the President was carried with acclamation, and, in acknowledgment, the President said that he had been considering the gas question very seriously for many years, and he felt that it had a very great future. The important thing was that it should be organized as well as any other element—in this he included electricity—in this country and to the same advantage. For they had the finest gas coal in the world, together with the finest brains and intelligence.

The New President.

Earl Fitzwilliam said that in the ordinary course the next business would have been to induct his successor in the Presidential Chair; but unfortunately the President-elect, Sir John Cadman, G.C.M.G., D.Sc., was unable to be present, and he read a letter from him regretting his inability to attend as a result of being confined at home, under his doctor's orders, with a chill.

The meeting then adjourned.

The Annual Dinner

The Rt. Hon. Earl Fitzwilliam, K.C.V.O., presided at the Annual Dinner which was held at the Hotel Metropole in the evening.

Mr. Reginald Clarry, M.P., proposed "The Society of British Gas Industries," and recalled that at the recent British Industries Fair at Birmingham, where there had been a large gathering at a luncheon comprising all the interests of the Gas Industry, he had made the comment that it was desirable there should be periodical meetings of that nature including the gas producers, the gas plant manufacturers, the publicity and sales side, the engineers, the legal and Parliamentary side, and, of course, the makers of gas equipment and appliances, because all those interests were so closely interwoven that there should be complete harmony.

A few of them that morning had been endeavouring to see that justice was done and that business could be maintained in the Gas Industry for a few years. [This was a reference to the proceedings in the Standing Committee on the Gas Undertakings Bill.] The Gas Undertakings Bill, he said, was a long wanted measure, however inadequate it might be, and therefore precautions must be taken to get the very best that was possible to ensure the ability of the Gas Industry to meet the great competition it had to face from day to day. The success and stability of the Gas Industry in all its phases during the unparalleled times of depression they had passed through was due in no small measure to the members of the Society of British Gas Industries, who, by their ingenuity, had very greatly improved gas-consuming and gas-producing apparatus. There never had been a greater need than there was to-day for increased efficiency in gas-consuming appliances. It might seem hard to have to face an immediate small decrease in consumption; but it must be borne in mind that by so doing the Industry would assure itself of maintaining its present output and increasing it in the future in other directions. Although the criticism he was going to make did not apply so much to-day—and he knew he was treading on thin ice in making it—it was the fact that the coal industry in the past had looked on with equanimity and calmness at coal being consumed in totally inefficient furnaces, perhaps 30 or 40 years old, knowing quite well that whereas two tons were being consumed, one ton in a more efficient grate or furnace would answer the same purpose. Therefore, it was not a matter for surprise that the two tons had completely gone to some other form of fuel; and that was a point to be borne in mind in present-day progress and scientific development. In conclusion, Mr. Clarry coupled with the toast the name of the President, whom he said he had never met prior to this dinner, but who had left the Lower House for the Upper House many years before he himself went into the House of Commons. They all knew of Earl Fitzwilliam through his coke oven activities and whose genius and personality they had all learned to respect for a very long time. Earl Fitzwilliam had a wonderful military record that anybody could be proud of and a record of devotion to public service. Further, he had an achievement which was most unusual inasmuch as when he was in the House of Commons he had a gas-works of his own. He sincerely wished the Society every success and due and ample reward for the work it was doing.

A Beginner.

The President, in responding to the toast, said that although he represented to a certain extent one of the most important sections of the Gas Industry, he was nevertheless a beginner in regard to the production and sale of coal gas. Mr. Clarry had touched on all the aspects of the Gas Industry in an excellent speech—what it might mean, what it should do and could do, and what the future would probably ask it to do, and he personally could only say that from his contact with the Industry through the Society, he felt sure that the future of gas in this country was assured. There were so many openings for it, and there were so many means of meeting the ever-increasing demand.

The Stool of Repentance.

Sir Alexander Walker, K.B.E., proposed the next toast, "The Gas Industry," and said he felt it was a little ironical that he should be doing so, because all his life he had had an interest in oil shares and electricity shares. He had been a Director of an electricity supply company in the North of England, and had probably been the most active member in forcing electricity upon his county. He had spent his life damning the Gas Industry. Now he had to stand on the stool of repentance and recant a good deal of what he had previously said. He had hoped that Sir John Cadman would have been present also standing on the same stool, but unfortunately he was not. The interests of Sir John and himself in the past had been against the Gas Industry.

His first experience with the Gas Industry was when he was an apprentice on a gas-works; and his next job in the Industry was when he was induced to take the Chairmanship of the Area Gas Committee which dealt with the first gas grid in this country, a large area gas grid based partly on the experience of Germany and even America. It was the work done by the Area Gas Committee which led to his first conversion from his previous views regarding the Gas Industry, and although he had not a single share in gas in any shape or form he took more interest in the development of the Industry to-day than he had in either electricity or oil, because he felt the public was so fickle in regard to electricity as a fashion, taking up electricity with a wild enthusiasm which had carried them, and to some extent the Government, off their feet. Electricity was regarded as the coming thing and the only coming thing. Gas, to some extent, was rather the Cinderella of the fuel industry, but, as they all knew, Cinderella came into her own at the finish, and he believed the Gas Industry had a great future.

Commenting on the organization of the Industry, Sir Alexander referred to the existence of the National Gas Council as representing the whole of the gas producing side of the Industry; but suggested that the scope of that organization should be extended to include the whole of the Industry, including production, plant manufacture, and even low-temperature carbonization and that part of the coal industry associated with coke ovens. Then that organization should have a very much larger and more important research department than existed at the present time. In other words, the whole of the research department attached to the existing gas undertakings should be more or less fused into one grand body under the control of a purely research man, with whom should be associated peripatetic men for carrying out ideas and solving problems which occurred from day to day. The members of such an organization should be able to make use of the services of such research men to tackle problems as they arose.

Under the present system there was a certain form of gas snobbery—a certain form of superiority on the part of a gas undertaking which had its own research laboratory and its own ideas and which would not spread its knowledge among other undertakings. The Wärmestelle in the Ruhr was something similar to what had outlined. The Distillers' Company had instituted something of the same kind also, and he had seen some of the fruits of such an organization. Therefore he was not wholly unaware of its advantages. The Wärmestelle was a combination of all the iron and steel producers in Germany and was on the lines he had indicated, and while the members of this organization were competing with one another in the markets of the world they threw the whole of the technical knowledge into the pot so that the general national production of steel should proceed in the cheapest and most efficient manner. Indeed, even on the sales side the various undertakings received tips from each other, and the whole policy was aimed at producing steel more cheaply and efficiently.

The toast was coupled with the name of Major Geoffrey H. Kitson (Vice-Chairman of the National Gas Council).

The Right Age.

Major Geoffrey Kitson, replying to the toast, said that a hundred years of activity on the part of the Gas Industry had brought it to the stage when it was at the right age to take advantage of the experience that had been gained. He claimed that the Industry was very strong at the present moment, and was likely to be very much stronger in the future, because a policy was now being formulated which would prevent any ills

which might be likely to arise, and that form of prevention was very much better than trying to look out for cures. A few of the preventives were the improvement in gas-works plant, more convenient and better appliances in the homes of the people, better, more convenient, and more attractive methods of charging, and, in addition to all that, better service to the consumers. Other activities were being pushed on with in the Industry at the present time. Sir David Milne-Watson in his Presidential Address to the National Gas Council on the previous day had referred to helping our home industries, and in that connection there had been some apprehension up and down the country—not only in the Gas Industry but in many other industries—that we were living in an age of vicious amalgamation. At the same time, it would not do for the Gas Industry to look askance at amalgamation as if it should not be dealt with in any way at all. There were, and would be, cases where economies could be effected in that way; but at the same time he hoped that amalgamation would not be gone in for "baldheaded," as if this were an industry trading abroad and trying to protect itself tooth and nail, because, whatever else happened in the interests of the people they served, it was necessary to prevent the loss of their individuality.

The toast of "Our Guests" was proposed by Mr. G. CYRIL DAVIS.

Mr. FRANK P. TARRATT (President of the Institution of Gas Engineers), who responded, said that during the time he had been President of the Institution he had had the opportunity of coming into intimate touch with the great ramifications of the Gas Industry in a manner which did not fall to the lot of many of them. During that time he had made very many friends in the Industry, and was probably more optimistic with regard to the future of the Industry than he had ever been before. Reference had been made to the necessity for research, and he was thoroughly in accord with all that had been said in that respect. The Institution of Gas Engineers had been pursuing research for a number of years, but the great difficulty was to find funds for it. At the same time, it was necessary to have more funds, because a great deal more research work would have to be carried out. In the sister industries research had been pursued to a greater extent than in the Gas Industry, and it was therefore incumbent on the Industry to do everything possible in that direction.

Although Sir Alexander Walker had referred to the gas snob, he personally had never encountered anything of the kind, although he had been associated with the Industry all his life and believed there was a great future for it. Notwithstanding all that was constantly appearing in the Press calculated to give the impression that the Gas Industry was dead, the position was very different from that. There was a field for both gas and electricity, and he considered it was most unfortunate that there should be the intense competition which existed at the present time. Both industries would continue; both were big industries and large employers of labour serving a very large community. Both must do their utmost to give the public what it required, and, after all, the public were the best judges. If the public felt it could be served better in certain directions by gas than electricity then gas would be used, and if it was felt that electricity was better, then electricity would be used. That was only commonsense and, indeed, was being practised to-day by everybody.

The changes that were being brought about from day to day in the great Gas Industry were really of considerable magnitude. At the present moment a grid scheme was being developed for the industrial centres; there was a co-ordinating Committee from which enormous advantages were expected, and there was little doubt that these advantages would be secured. There were also the four Associations—the Institution of Gas Engineers, the National Gas Council, the Federation of Gas Employers, and the Society of British Gas Industries—all pulling their weight, and they would continue to pull their weight. Expressing the view that the public would appreciate what was being done to provide a cheap and efficient service of gas, Mr. Tarratt said it was unfortunate that there should be this feeling passing over the country at the present time that had been referred to in regard to the position of gas and electricity. The electrical industry undoubtedly had had a good send-off, but the Gas Industry should not be grudged what it could secure in an open competitive market.

THE NEW PRESIDENT.

Mr. H. E. BENNET said that although the toast of "Our New President," which he was down to propose, fell to the ground through the unfortunate absence of Sir John Cadman owing to indisposition, it would, at the same time, be appropriate that he should make a few remarks about him. Although Sir John was the representative of an industry which in some of its phases was competitive with the Gas Industry, the oil industry was at the same time a very large supplier of raw material to the Gas Industry which bought some 52 million gallons of oil per annum. The feature of having a public man of the eminence of Sir John Cadman as President of the Society would commend itself to the members, and they were following out the policy of getting prominent and distinguished public men to accept that position. That was all to the good of the Society and the Industry, and in the absence of Sir John Cadman he asked all present to drink his health and wish him a speedy recovery.

The health of Sir John Cadman was then drunk enthusiastically with a general wish for his speedy restoration to good health.

South-Western Gas Corporation, Ltd.

Statutory Meeting

The statutory meeting of the South-Western Gas Corporation, Ltd., was held on May 10 at the Registered Office of the Corporation, 9, Clements Lane, London, E.C., Mr. S. J. INGRAM presiding.

The representative of the Secretaries (Messrs. Close Brothers, Ltd.) having read the notice convening the meeting and the report of the Auditors,

The CHAIRMAN said: Gentlemen, this meeting, as you know, is held to comply with the requirements of the Companies Act, and all we have to do is to present to you the statutory report in accordance with that Act, which has been filed and circulated among the shareholders.

First, let me report to you that at the unanimous invitation of the Board the following gentlemen have joined your Board of Directors—Mr. Harold Godfrey Palmer and Mr. John Michael Whittington. Mr. Palmer, as probably you are aware, is a Director of the Imperial Gas Association and the British Gas Light Company, and brings to the service of the Company a vast experience of gas administration in this and other countries, which will be particularly valuable in the problems facing the Corporation, more especially in the early days of its history. Mr. Whittington is the son of Mr. C. H. Whittington, a gentleman well known and greatly esteemed and honoured both in gas circles and on the Stock Exchange, and his colleagues feel that Mr. Whittington will prove a very valuable acquisition to the Board.

PURCHASES EFFECTED.

We have been occupied since the formation of the Corporation in carrying into effect the offers of purchase which we made to the stockholders of the Truro Gas Company and the shareholders of the St. Austell Gas Company, Ltd., Padstow and St. Columb Gas Company, Camborne Gas Company, Ltd., Bude Gas Company, St. Blazey Gas Company, Ltd., and Okehampton Gas Company, Ltd.

It is gratifying for us to be able to report that the lowest percentage which we hold in the ordinary share capital of any such companies is 88%. In some of them we practically hold the whole of the share capital. The actual percentages are: Truro, 90·5; St. Austell, 98·7; Camborne, 88·3; St. Blazey, 96·7; Okehampton, 94·6; Bude, 91; Padstow and St. Columb, 98·3.

The idea which is at the root of the formation of the Corporation—namely, the grouping of these interests with the objects stated in our offer, has therefore had a most successful inauguration. This idea has, as you know, the direct support of and is in accordance with the advice given by the National Gas Council of Great Britain and Ireland. Put shortly, it is to group together a number of the gas undertakings in Devon and Cornwall for close co-ordination in production and distribution of gas. By so doing scattered undertakings in Devon and Cornwall will obtain all the advantages of bulk purchases, co-operative effort, and standardization which alone they cannot possibly obtain.

At the first Annual General Meeting of the South-Eastern Gas Corporation, Ltd., held the other day, Sir David Milne-Watson, among other pertinent and informative remarks, stated:

> I regard the grouping together of gas undertakings in this way as a most practical and effective form of rationalization. It is good for the Industry as a whole, good for the individual undertakings composing the group, good for consumers, and good, I feel confident, for the shareholders.

I recommend to all the shareholders the whole of this speech as well worth careful perusal.

BENEFITS FROM CLOSE CO-OPERATION.

Funds will be available through the Corporation for the development of new areas, for the acquisition of apparatus for hire and/or re-sale, and for improvements in the services rendered to consumers.

As an ultimate result of working together in this manner, we look to reducing the price of gas in most if not all districts, and this policy will undoubtedly result in increased sales of gas, leading to improved profits for the gas undertakings and the benefit of this Corporation as shareholders.

The grouping of gas undertakings for the purpose of co-ordination and co-operation will not destroy the individuality or locality of the undertaking, as it will continue to be a separate entity; and our policy will be to retain so far as possible local representation and staff personnel in any undertaking in which we acquire an interest.

Other gas undertakings will, it is confidently anticipated, be brought into the Corporation, and situations are developing which will enable the Corporation to establish close working arrangements in groups for production of gas centralized at selected works.

There being no questions, the proceedings terminated.

Eastern Counties Gas Managers' Association

MEETING AT CLEETHORPES

The 87th half-yearly meeting of the Eastern Counties Gas Managers' Association was held at Cleethorpes last week under the Presidency of Mr. F. G. Brockway, whose father the late Mr. E. J. Brockway was President, and also Chairman of the Cleethorpes Urban District Council, when the last meeting of the Association was held at Cleethorpes in 1905.

The meeting commenced on the Thursday morning with an inspection of the Cleethorpes Gas Company's Works, of which Company Mr. Brockway is Engineer, Manager, and Secretary.

Afterwards members were the guests of the Cleethorpes Gas Company at luncheon in the lecture hall attached to the Company's showrooms. Sir George Moody (Chairman of Directors) presided.

Mr. R. G. SHADBOLT, proposing the toast of their hosts, traced the history of the Cleethorpes Gas Undertaking through what he called the Brockway régime, dating from 1850 when the late Mr. E. J. Brockway was appointed Engineer and Manager. He quickly realized the potentialities of Cleethorpes as a gas consuming community, and was fortunate to find a Board of Directors anxious to respond to his progressive enterprise. That Board had a genius for choosing officers of a high order. During the late Mr. Brockway's 35 years' service the gas sales of the Company increased by 1,265%, an enormous development, and the Company had not been saddled with obsolete capital. The mentality of the Directors was shown by the erection of those magnificent showrooms, which were out of all proportion to the magnitude of the undertaking at the time. They had been well justified, however, for that building had given the Undertaking a status in the eyes of the public which otherwise it would not have attained. Mr. F. G. Brockway took charge of the Undertaking at its most critical period, during the industrial depression, and on top of that there came the competition of an electricity supply undertaking, which seemed largely superfluous to the presence of such a progressive Gas Undertaking. Despite this, gas sales had increased, and the sales of gas apparatus during the period of depression had actually doubled. The price of gas was not the criterion of an undertaking, reasonable as it was in this instance, but the efficient, consistent, and reliable all-round service it rendered its consumer.

Sir GEORGE MOODY, in his reply, expressed the hope that it would not be 29 years before the Association visited Cleethorpes again.

Mr. W. GROGONO (Croydon) proposed a toast to the Town and Trade of Cleethorpes, to which Councillor A. W. COX responded.

Responding to the toast of the Association, proposed by Mr. H. E. COPP (British Gaslight Company, Ltd., Hull), the PRESIDENT spoke of the flourishing condition of the Association, and asserted his belief in the value of Association work. "We believe in it," he said, "and with great respect to the Institution of Gas Engineers, we believe that such meetings as these in towns widely scattered throughout the country give the Gas Industry contact with the leading citizens and trading interests to an extent which no other mode of activity in the gas profession affords."

Tribute to the useful services rendered by the Technical Press was paid by Mr. THOMAS GLOVER in proposing the visitors and Press. The MAYOR OF LINCOLN (Councillor G. Deer) responded.

BUSINESS MEETING.

At the opening of the business meeting which followed, the PRESIDENT welcomed the presence of Mr. F. P. Tarratt, President of the Institution of Gas Engineers.

The PRESIDENT next referred to the death of a Past-President, Mr. J. Young, and the gathering stood as a mark of respect.

Mr. W. Grogono had had to leave before this stage in the proceedings was reached, and Mr. Brockway explained that the Past-President's Medal would have to be forwarded on to him. The immediate Past-President's term of office had been characterized by evidence of the best traditions of the Association. They always enjoyed his company and valued his counsel.

On behalf of the Association the President then made a presentation of a wallet containing notes, subscribed to by all the members, to their Secretary, Mr. W. C. Chapman, on the occasion of his recent marriage. The President said Mr. Chapman had the whole-hearted good wishes of all the members for his future happiness.

Mr. CHAPMAN, in reply, said he very much appreciated the manner in which they sought to mark this episode in his life. He fully appreciated the very kind feeling towards him which had prompted them to make the gift. He thanked them sincerely for the kind appreciation of the small efforts which he had made in the past. He would endeavour to continue such efforts on behalf of the Association.

The election of members and associates followed. The members elected were: Mr. Ernest Edward Grimwood, of Lavenham, Suffolk; Mr. Frank Herbert Robinson, of Bishop's Stortford; and Mr. William Ewart Plevin, of Romford. The associate members were Mr. James Samuel Burgoyne, of Carshalton; and Mr. Charles Glover Clark, of London.

The election of these was moved by Mr. G. WRIGHT and seconded by Mr. F. WEST.

The Committee's report and balance-sheet was submitted, and the PRESIDENT commented on the entirely satisfactory state of the finances. He said he believed that the balance in hand, £84 4s. 3d., constituted a record.

Moving the adoption of the report and balance-sheet, Mr. H. G. RUGGLES said the Committee were to be congratulated.

Mr. H. R. WIMHURST, who seconded the adoption, said the report showed a very successful year and the balance-sheet revealed a satisfactory state of affairs, but it did occur to him that this balance in hand was increasing year by year and the Committee might find some means of dealing with the balance.

The PRESIDENT said he was sure the Committee would take notice of the suggestion.

The Committee recommended that a donation of £5 be made to the Benevolent Fund of the Institution of Gas Engineers. The resolution was proposed by Mr. W. A. G. HARDY, seconded by Mr. S. HANDS, and carried.

Referring to the Sir Arthur Duckham Memorial Fund, the PRESIDENT said that the Committee were prepared to recommend that a sum of five guineas be subscribed to this fund. They were all well aware that it was an exceedingly worthy object. He was one of those who were privileged to know the late Sir Arthur Duckham, and those who shared that privilege would say with him that those who did not missed an experience. He was a great man whose interests spread far beyond the confines of the Gas Industry. The speaker knew no man who had striven more for the welfare of his country and for the betterment of his colleagues, and whose name was more worthy of commemoration.

Col. JOHN KENNINGTON formally moved that this money be devoted to the Fund, and in doing so he apologized for digressing for a moment, as he wished to express his appreciation of the honour which had been done to his fellow neighbour and friend, Mr. Brockway, and of the splendid arrangements he had made for their entertainment. From time to time, said Col. Kennington, he had been privileged to visit the Cleethorpes Gas-Works, and on each occasion he had seen something new. "I think," he said, "if such progress can reach a climax, the climax has been reached to-day." The business that had been placed in his hands he esteemed a privilege. They all knew that a Memorial Fund was being raised to Sir Arthur Duckham, whose memory he need not dwell on. As gas engineers they were proud of Sir Arthur. Their tribute was paid to a man who gave so unselfishly of his services not only to the Industry, but to the nation at large. It gave him great pleasure to propose that the sum of five guineas be given to the fund.

Mr. BIRCHMORE seconded and it was carried.

PRESIDENTIAL ADDRESS.

The PRESIDENT then gave his Address (see other pages of to-day's "JOURNAL").

Mr. P. D. WALMSLEY, proposing a vote of thanks, said they had listened to an address which showed their President to be a real live wire. They had seen at the works that morning evidence of the careful investigation, preparation, and ultimate achievement in the construction and organization of a splendid works. Of their President they could say that he was thorough in everything he did, and his Address showed a well-balanced outlook.

Mr. C. R. FOWLER seconded, and it was carried with enthusiasm.

EDUCATION SCHEME.

A report was submitted by Mr. E. F. KEABLE on the Education Scheme and Salesmanship Course. This showed that, as in previous years, students had availed themselves of the Committee's guidance and help.

It was gratifying, the Committee reported, to record that ten students were taking the Final Course of the Scheme, having pursued their studies for five years. Appreciation was expressed of the work done by tutors in these classes, of the gas undertakings who had made the training possible, and of the continued and valued co-operation of the Education Authorities in the various towns. It was hoped

that the valued training thus secured would be used to the fullest possible extent in the competition which the Industry was facing, and that promotion would go to students who successfully passed the examinations.

All salesmen were urged to take advantage of the Salesmanship Course of the B.C.G.A., and to offer their best services in all schemes connected with education. As a district, the report concluded, they were awaiting further information with reference to the B.C.G.A. Fitters' Course by reason of the difficulty in getting to any one centre the number required under the scheme.

Mr. B. CLARK moved the adoption of this report, and Mr. F. YOUNG, who seconded, said the Eastern Counties were sparsely populated; nevertheless the Course had achieved a good deal of success, which was due in great measure to Mr. Keable, who had done splendid work and put in a great deal of time.

It was decided to hold the Autumn Meeting in London.

The PRESIDENT invited the President of the Institution to say a few words, and Mr. Tarratt briefly congratulated Mr. Brockway on the businesslike way in which he had conducted the meeting. The President's Address had been most interesting, and it had introduced features which were seldom touched on in such a vein.

VISIT TO GRIMSBY.

On the Friday morning some of the members visited the Grimsby Fish Docks, seeing the new £1,500,000 dock in course of construction, and the largest ice factory in the world; while others visited the Tetney Beam Wireless Station which transmits to Australia and India.

ANNUAL DINNER.

A very happy function was the annual dinner of the Association, held at the Royal Hotel, Grimsby, after the business meeting.

The toast of the Cleethorpes Gas Company was given by Mr. F. B. RICHARDS, Chairman of the Woodall-Duckham Companies, who very happily expressed thanks for the welcome and hospitality which had been offered to members and visitors by the Company. A reply by Mr. F. S. LETTEN, a Director of the Company, was followed by "Our Guests," proposed by Mr. B. CLARKE (Stamford), to which Mr. C. W. THOMPSON, President of the Chamber of Commerce and Shipping, replied.

The Eastern Counties Association was proposed by Mr. F. P. TARRATT, President of the Institution, who commended their enthusiasm and splendid work, and Mr. J. H. TROUGHTON (Newmarket), in reply, brought out some interesting memories from his 45 years of membership.

The toast of the President, given by Mr. E. F. KEABLE (Gorleston), was enthusiastically received, and Mr. BROCKWAY'S reply showed that the responsibilities and exertions of the day had by no means overwhelmed him.

Musical items rounded off a very enjoyable evening.

MR. F. G. BROCKWAY'S ADDRESS

As President of the Eastern Counties Association.

It is proper and customary for the President on these occasions to return thanks for his election to the Chair, and this I do gladly. But I want to add to it to-day a note of warm personal appreciation engendered by the friendliness you have extended to one who has comparatively recently come into your midst.

Now may I indulge in a spot of retrospection, tendering as my excuse that whether the process be salutary or not, it may at least do something towards giving us a true perspective?

Twenty-nine years, or practically three decades, have passed since our justly famed and well-loved colleague R. G. Shadbolt delivered his Eastern Counties Presidential Address here in Cleethorpes. Characteristically enough it was delivered extemporaneously, a feat which I believe has not subsequently been attempted, let alone equalled. That to begin with shows some of us by comparison where we stand in regard to the capacity for expressing ourselves on the subject of our job—a qualification which is perhaps more desirable to-day than ever.

Going back to 1905 one notes that your President, Mr. Shadbolt, had then 15,000 flat-flame burners on his district as against 6,000 incandescent burners, and it is interesting to recall that some criticism was directed at his attempts to meet changing conditions by means of passing producer gas from his settings into the coal gas stream. A year later the question was still being hotly debated, but after a quarter of a century had passed some of the most progressive gas-works in the country were adopting the identical process, dignified—or extenuated—under the label of "calorific control."

It is significant to note that competition was scarcely ever mentioned in Presidential Addresses in the first decade of this century. One of the rare references to it occurred in my father's Presidential Address in 1906, and although he accurately foretold the effect of competition, the finest testimonial to him and his contemporaries is that long before they felt the stinging spur of State-aided aggression they strove mightily to serve their calling by perfecting their processes and adopting ideals of public service that were rare indeed in the sordid, greedy years that immediately followed the Industrial Revolution. I claim that to that fact more than to any other must be ascribed the Gas Industry's unique ability to outride unimpaired the terrific storms of recent years.

A SIGNIFICANT LESSON.

Our predecessors were indeed practical men hammering out their problems in a practical way without the guidance of specialized research and with none of the refinements of the modern laboratory to aid them. Yet not only did they make amazing headway but they saw the possibilities of still further progress; and therein lies, perhaps, the most significant lesson for us to-day. I maintain that if we take that lesson to heart, if our ideals are as lofty as theirs and our determination as strong, our Industry has before it a future even greater than they imagined.

At the period of which I have spoken little was heard of amalgamations, gas-grids, or two-part tariffs. Of the two former it may be said that the sparsely populated Eastern Counties do not present favourable fields for immediate exploitation.

THE PRESIDENT,

F. G. BROCKWAY, of Cleethorpes.

Mr. Brockway was born at Norton, Malton, Yorks., and was educated at the Grammar School, Clee, of which he is now a Governor. He received his early training at the Cleethorpes Gas-Works, and subsequently as a pupil engineer with Messrs. Robert Dempster & Sons, Ltd., of Elland, on whose behalf he served at gas-works in many parts of the British Isles and abroad. He was appointed Assistant Engineer and Manager of the Cleethorpes Gas Company in 1922, succeeding to full control on the death, in 1925, of his father, the late Mr. E. J. Brockway.

At all events if it is not, as yet, practicable to discuss amalgamations and two-part tariffs without reference to

special local circumstances it may well seem that the question of a grid is more speculative and remote than either. There is, however, always the possibility of some revolutionary technical discovery or development happening which would render the rationalization of ownership, finance, and control imperative. The questions of centralized production and long-distance distribution would be profoundly affected by success in complete gasification, for instance. To be able to send all our therms along a pipeline—and not necessarily the same kind of pipeline as we think of to-day—might easily justify re-organization on a scale that to-day is unthinkable.

A little consideration will show that the effect on the community of the complete withdrawal of our solid-fuel bye-product would be very far-reaching, as the recent acute shortage of coke in this area has already disclosed.

But centralized production is not yet here, and so long as separate gas-making units exist, engineers and managers

			SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
C.V. MAKE									
CALOGRAPH									
C.V. TOWN									
HEASLEY									
SP. GR. TOWN									
GAS ANALYSIS	WASTE HEAT BOILER	CO_2							
		O_2							
		CO							
	PRODUCER GAS	CO_2							
		O_2							
		CO							
		H_2							
		CH_4							
		N_2							
	TOWN GAS	CO_2							
		O_2							
		CO							
		Ca Hn							
		CH_4							
		H_2							
		N_2							
PERCENTAGE EXTRACTION H_2S PURIFIERS									
LIQUORS, PERCENTAGE NH_3	WELL								
	CONDENSERS								
	TOWER								
	WASHER								
NH_3 Inlet Purifiers Grs. per 100 cu. ft.									
NH_3 IN GAS % EXTRACTION									
COMBUSTIBLES IN PAN ASH									
COKE TO CONSUMERS	MOISTURE %								
	ASH %								
S.A. PLANT	EFFLUENT % NH_3								
	SULPHATE	H_2O %							
		NH_3 %							
		Free Acid %							
SPECIFIC GRAVITY TAR									

C VERTICALS WORKING RESULTS CORRECTED TO N.T.P.	GAS MADE	COAL CARB.	MAKE PER TON	Av. C.V. Make	Therms P. Ton	COKE				MAKE PER STOKER	Av. Steam Pressure
						MADE T	USED T	USED ON MAKE %	USED ON GRAT %		

COALS	COLLIERY	Moisture %	Vol. Matter %	Fixed Carb. %	Ash %	Sulphur %	REMARKS

Fig. 1.

will continue to be interested in such a plant as we have had the pleasure of showing you to-day at Cleethorpes.

It will have been obvious to you that the general arrangement of our works is largely the result of developments that at times have taxed the powers of all concerned to deal with their incidence. It is to the credit of those in control at the time that the lay-out was not allowed to get entirely out of hand and that we can still contemplate further additions without the necessity for extensive rebuilding.

You will have drawn your own conclusions as to the design, condition, and control of the plant, so I will not weary you with detailed descriptions but will endeavour briefly to cover points that may not have been obvious to every visitor.

Plant Control.

First as to control. The staff comprises a general foreman, two deputy-foremen, a senior and junior technical assistant, and a draughtsman. We aim at a practical working compromise between the stoker's shovel or damper-hook and the refinements of a research station. Copies of three of our Record Sheets are given (figs. 1, 2, and 5). Every analysis indicated is not made every day, but as often as circumstances require.

In regard to carbonizing it is common knowledge that a lot of practical pioneering and experimental work has been done here. As recently as 1928 hand-stoked horizontal retorts, intermittent verticals, steamed continuous verticals, and a blue water-gas plant were all at work simultaneously. We have now only steamed continuous verticals in use, with the intermittents as a stand-by.

The original eight continuous vertical retorts were governed as to " pull " by an 8-in. retort house governor, but when a further four retorts were added this was replaced by a Reavell Askania regulator. The governing was thereby greatly improved but not yet completely satisfactory, so in 1932 the crude-gas stream was split, another regulator added, and a central control panel with twin recorder and magnified charts installed. As you may have observed the vacuum is now definitely held at ± 2/100 in. W.G.

Extensive reconstruction work in the retort houses seriously dislocated routine operating especially during the years 1928 to 1932, during the first three of which all four gas producing systems were at work for varying overlapping periods. These conditions are reflected in the fluctuating average yields as disclosed by the following table:

Year.	Therms per Ton.
1928	77·9
1929	80·8
1930	80·4
1931	81·6
1932	79·6
1933	83·4

During the quarter ended March 31, 1934, the average yield has been 88·6 therms per ton, with South Yorkshire coals, and it is expected that unless it becomes necessary to drop back on to stand-by plant the higher yield will be maintained. Apart from settling down to the use of the one reconstructed plant in the one retort house the improved results are the outcome of constant vigilance and insistent attention to small details rather than to any spectacular effort. We attach the greatest importance to the upkeep of the bench brickwork and particularly the retorts. A qualified retort-setter regularly sprays and where necessary patches each unit after scurfing, and some care has been expended in designing equipment and facilities for carrying this work out expeditiously.

By steaming at an average pressure of 20 lbs. per sq. in. through $\frac{3}{16}$ in. diameter nipples with a bottom flue temperature of 1,100° C. we have no difficulty in maintaining a CO content in the town gas of 18 to 19%, thus proving the regularity and efficiency of the water gas reaction from steaming.

Having all our production at present concentrated in the one retort house we considered it advisable to install a stand-by drive for the coke extractors and a drawing (see fig. 3) shows the simple change-over gear. The importance of throughput control being so great we have the strokes of the reciprocating bars registered on a counter, with the result that a remarkably steady speed is achieved.

Re-Modelled Coke Screening Plant.

A minor reconstruction job was the re-modelling of the coke screening arrangement illustrated by fig. 4. Originally coke taken up by skip was tipped over fixed screens. This was certainly simple and inexpensive, but the grading was far from satisfactory and in particular a considerable proportion of fines got among the large coke. By modifying the fixed bar screens, adding a controlled mechanical feed and rotary screens for grading and de-breezing, a great improvement has resulted. The process is practically automatic and we can now guarantee a de-dusted fuel in three sizes $\frac{1}{2}$ in. to $1\frac{1}{4}$ in., $1\frac{1}{4}$ in. to $2\frac{1}{2}$ in., and large lumps. I take this opportunity of paying a tribute to our staff and

WASTE HEAT BOILER—RECORD SHEET.

Time.	Boiler Pressure Lbs./□".	Temperature. °C.			Feed Water °F.	Water Level.	Engine Oil Pressure.	Draft at Main Flue.		Water.		Pushbar Strokes.		Remarks
		Main Flue.	Boiler In.	Boiler Out.				Nos. 1 & 2 Beds.	No. 3 Bed.	Meter.	Galls. Used.	Counter.	Stks./Hr.	

FIG. 2.

workpeople for devising and constructing this economical improvement to our plant.

Condensation, tar extraction, washing, scrubbing, and purifying equipment follows the lines of general practice, and it will have been noticed that the more recently installed or reconstructed apparatus has valves above ground

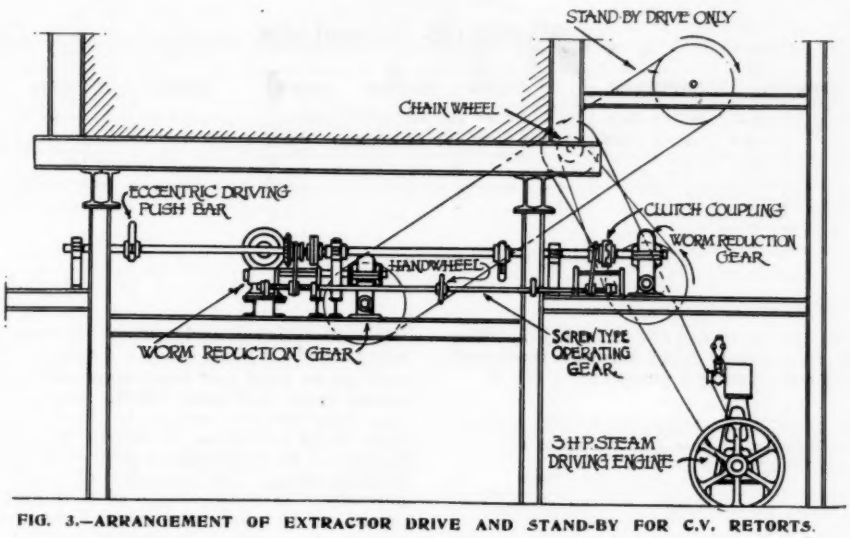


FIG. 3.—ARRANGEMENT OF EXTRACTOR DRIVE AND STAND-BY FOR C.V. RETORTS.

level and accessible connections wherever possible. The re-arrangement of our district governor and gasholder connections and the adoption of a diaphragm-type safety governor enabled us to do much towards simplification and accessibility of vital pipework and valve combinations, including the provision of an entirely removable grid floor in the station meter and governor house.

In regard to storage I told the members at our last Autumn Meeting that our erratic load was considered to necessitate a larger reserve than is generally adopted. At the present time we have actually available a total of 2½ million c.ft. holder capacity as against our highest day's output of 1,266,000 c.ft.

Waterless Gasholder.

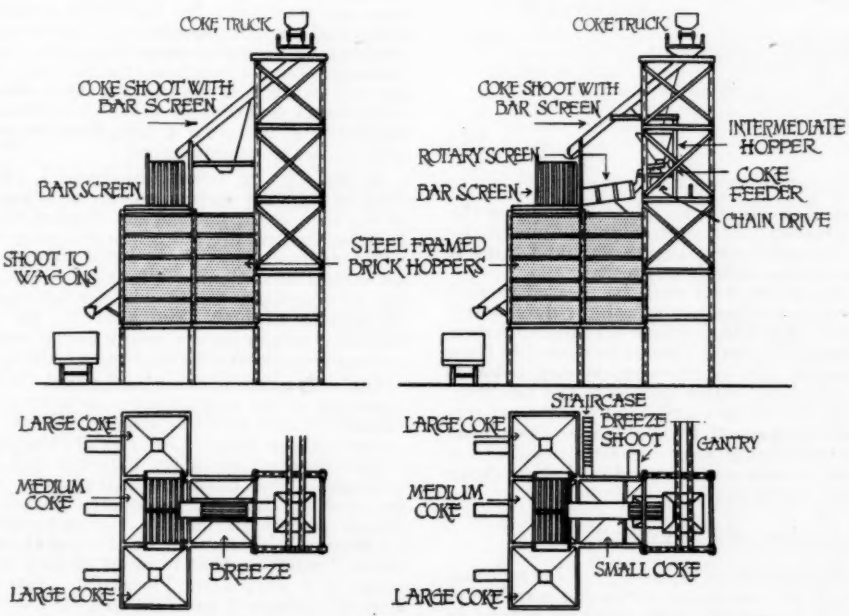
Waterless gasholders were still uncommon in this country when at the end of 1929 we decided after careful consideration to adopt this type for our last addition. An important factor in that choice was the ability to get one of 1½ million c.ft. capacity on the site scheduled for storage which could not have been done safely otherwise. We have had no reason to regret our decision.

It is no secret that some trouble was experienced with the first lot of sealing-tar produced to the German specification. This was due to absorption of paraffins from the gas resulting in excessive thinning and a sludge deposit.

The holder was first put into service in June, 1931. Average pump runs during early months were:

August, 1931	5·7 per day
January, 1932	10·7 ,,
March, 1932	13·1 ,,

By mid-December, 1931, the viscosity had fallen from 6°-7° to 3° (Engler at 50° C.) and the light hydrocarbon content risen from 9% to 16%.



Coke Screening Plant before Modification. Coke Screening Plant after Modification.

FIG. 4.

There was nothing for it but to ground the piston, remove the unsuitable sealing material, and start afresh. This was accomplished by June 23, 1932. Five months later a sample of the new tar from the seal tested out as follows:

Specific gravity at 60° F.	= 1·080
Water	0·5% by volume
Oil to 160° C.	3·5 ,, ,,
,, 200° C.	12·0 ,, ,,
,, 230° C.	17·0 ,, ,,
,, 250° C.	22·0 ,, ,,
Viscosity at 50° C.	4·82° Engler

Some emulsification was observed in the first collecting chambers in February, 1933, and its continuation has necessitated removal of the emulsified material and replacement. It is not yet possible to say what this will amount to over a period of years, but it is certainly not a serious item.

WATERLESS GASHOLDER.

DATE	PUMP COUNTERS.								AVERAGE	PISTON SEAL				GAS	TAR	REMARKS	FITTER
193	No. 1 CABIN		No. 2 CABIN		No. 3 CABIN		No. 4 CABIN		PUMP RUNS	BAY 2-3	BAY 7-8	BAY 11-12	BAY 16-17	PRESS.	TEMP. °C		
	F	B	F	B	F	B	F	B									

FIG. 5.

More recent tests of the tar in use are given below. The samples were taken respectively from the seal itself and from the side of the holder during a pump run.

—	Dec. 11, 1933.	Jan. 30, 1934.
Specific gravity at 60° F.	1·086	1·065
Water	1·0% by volume	2·0% by volume
Oil to 160° C.	3·5 ,, ,,	8·0 ,, ,,
,, 200° C.	8·0 ,, ,,	16·0 ,, ,,
,, 230° C.	12·5 ,, ,,	20·5 ,, ,,
,, 250° C.	16·0 ,, ,,	25·0 ,, ,,
,, 270° C.	24·0 ,, ,,	31·5 ,, ,,
Viscosity at 50° C.	7·2° Engler	4·15° Engler

These latter tests indicate considerable absorption of light oils by the tar during winter months, thus obtaining the desired balance against the thickening tendency due to cold weather.

Further pump-run records are:

		Average Pump Runs per Day.
August,	1932	9·4
January,	1933	5·0
March,	,,	7·2
June,	,,	5·5
October,	,,	0·8
December,	,,	0·8
January,	1934	2·0
March,	,,	2·9

We have in course of erection a tar plant embodying the well-known T.I.C. process. The particular equipment designed for this job has some unusual features, but I think it would be premature to give details at present.

If the members are interested I shall be pleased to submit a communication on the subject at a later date, but I may say this at once: When the scheme was placed before my Board they regarded it not so much as desirable from the dividend standpoint, but as an essential step towards higher over-all efficiency and better service to the locality.

Having glanced at past history and briefly reviewed certain features of our equipment, I should have been next tempted to discuss our sales and service activities, but for the fact that these have been given a good deal of publicity in the Trade Press in recent years.

"A Tremendous Advance."

I will therefore pass over those topics except for pointing out how significant it is that in an increasing number of cases the gas bills in households now equal or exceed in annual amount the total of the electricity bill. Lest this statement reaches the general public I hasten to add what you all know that this is not because electricity is being reduced in price but because more energy is required in gaseous form as people come to realize its advantages coupled with the fact that modern gas appliances actually enhance the appearance of premises where they are installed. In other words we have got past the stage when gas was merely tolerated for its cheapness. Psychologically it is a tremendous advance.

Let us take a further look ahead.

With particular reference to internal policy as applied to individual undertakings, I think we are nearing the time when we shall see the complete disappearance of the managerial faddist—perhaps "specialist" would be the less offensive term—who ran his undertaking virtually from one angle. You know what I mean—the man who concentrated solely on the retort-house or it may have been all-rounder or his counterpart in multiple control. Above all, we must have a clear recognition by Boards and Committees of the vital importance of balanced effort. Let me the distribution department, or the commercial side, or one who turned his plant into a chemical works.

What we want and what we must have in his place is the repeat that: Balanced Effort. I am certain such recognition does not exist uniformly throughout the Industry today. I do not mean, of course, that at no period in the history of an undertaking shall there be any sectionalized concentration. The vagaries of local circumstance will necessitate periodic swings of that kind; but, with every desire not to labour the point, I do insist that we cannot achieve the highest degree of over-all efficiency without balanced effort.

Let me add this: that the suggestion is not made lightly. On the contrary, its achievement may well prove our most difficult task.

The Future of Competition.

So much for internal policy. Taking a wider sweep and looking first at the immediate future, it is obvious that we must develop along clearly defined practical lines including the acceptance of competitive conditions which I am certain are wasteful. Do not misunderstand me. I love a scrap and am not pleading for a sinecure. I firmly believe that, up to a point, competition has greatly benefited our Industry; but I think also that the day will come when the general public will call the dog-fight off and insist that the contestants devote their whole energy to the major problem of utilizing Nature's diminishing resources, if need be jointly, to the common good.

At the risk of being discursive I will interpolate here that in my view we are greatly to blame for the existence of the idea at the back of the mind of the man-in-the-street that because we are not a new Industry we must inevitably suffer replacement. It is an absurd notion and one that we should have done our best to smother long ago. Have the new aeroplane and wireless industries scrapped anything comparable? The pottery, the cutlery, and the weaving industries are many many centuries older than ours and are more vigorous and necessary to-day than ever.

Can we assume with certainty that the days of sensational increases in gas outputs are passed for ever? Of course we cannot. Take just one aspect. Fresh discoveries or developments in other industries are themselves creating new human needs—the motor industry and modern roads, for example. This unending extension of sophistication may be, and is, deplored by many who should know better. Those who are alarmed by it seem to think its superfluities, as they call them, can be discarded like a tight pair of shoes, forgetting that in point of fact we don't discard the shoes in a walk down Piccadilly. You see what I mean? Can we go back if we want to? If not, we are all liable to be called upon for services that are unthought of to-day.

How many gas men when this Association last assembled here guessed that in 1934 twenty million people in these islands would be daily using a contraption called a wireless valve in the manufacture of which town gas is used? The relatively small demand in this instance does not affect the argument. One conception of the city of the future, to which we are perhaps moving faster than we think, may render the transportation of solid or liquid fuel to the user impracticable. Think of what that may mean to the Gas Industry.

On these assumptions it may well be that our successors will smile at the cautiousness of our present attitude when they look back at the files of our transactions as I have done in preparing this address.

Institution of Gas Engineers' Examinations

The following questions were set in the Examinations in Gas Engineering and Gas Supply, which were held on April 28 and May 5 respectively, under the Education Scheme of the Institution of Gas Engineers.

GAS ENGINEERING.

ORDINARY GRADE.

From 2 p.m. to 5 p.m.

(Two questions in each of the three Groups should be attempted.)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

GROUP A.

1. Sketch in outline the heating system of any retort setting with which you are familiar, indicating the travel of the gases.
   State the chemical reactions that occur, and give your idea of the calorific value of a good producer gas.
2. What are the functions of a retort house governor? Sketch the construction, showing connections, of a retort house governor known to you, and describe briefly its action and effect.
3. Describe, in their proper order, the several units of plant employed in the manufacture of carburetted water gas, and explain the object of each. Where do the principal chemical reactions occur? Explain and state their equations.

GROUP B.

4. Why is a condenser installed? Describe, with sketches, a condenser of the water cooled type, and indicate the method whereby the gas and water are prevented from coming into contact.
5. Sketch any well-known mechanical scrubber, and describe its action. How would you estimate the quantity of NH_3 in either (*a*) crude coal gas, or (*b*) ammoniacal liquor.
6. Give the approximate composition of an average natural oxide of iron suitable for the removal of H_2S from coal gas. Describe a method of working a set of four purifiers and state the percentage of sulphur the oxide should contain before being rejected as spent material.

GROUP C.

7. Describe any process for the dehydration of gas, and briefly outline the main advantages to be obtained from the use of dry gas.
8. State the essential difference between frame-guided and spiral-guided gasholders, and describe, with the aid of a sketch, the main principle underlying the design of a spiral-guided gasholder.
9. Sketch and explain the working of a non-recording calorimeter approved by the Gas Referees. How does the Boys' bell meter operate, and state the means provided to ensure its accurate registration?

HIGHER GRADE.

PART I., from 2 p.m. to 5 p.m.

(Two questions in each of the two Groups should be attempted.)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

GROUP A.

1. (*a*) Explain the advantages of regenerative as compared with direct firing in retort furnaces.
   (*b*) Describe the reactions which take place in each type of furnace, giving the heat units generated per lb. of carbon at each stage in the regenerative furnace.
   (*c*) Describe the effects of using water or steam in the regenerative furnace.
2. (*a*) Describe the construction of a setting of horizontal or vertical retorts, with producer furnace, giving principal dimensions.
   (*b*) State quantity of coal carbonized per day per retort and grate area required in the producer furnace.
3. (*a*) Describe a self-clinkering generator for a carburetted water gas plant.
   (*b*) State quantities of oil, coke, air, and steam required per 1,000 c.ft. of 400 B.Th.U. gas made, and give quantity of steam which you would expect to obtain from the generator jacket boiler.
   (*c*) State the quantity of tar made per 1,000 gallons of oil used.

GROUP B.

4. (*a*) In what forms is sulphur usually found in bituminous coal?
   (*b*) Describe a method of determining the total quantity of sulphur in a given sample of coal.
   (*c*) In what forms does the sulphur reappear in the various products of carbonization?
5. (*a*) Describe one type of apparatus used for making a complete analysis of coal gas.
   (*b*) Give the approximate composition and specific gravity of gas obtained either from horizontal or vertical retorts, and show how to calculate the calorific value from the analysis given.
   (*c*) What is the difference between "gross" and "net" calorific value?
6. Compare (*a*) the composition of tar usually made from coals carbonized in horizontal retorts with that made in continuous vertical retorts, and (*b*) their suitability for making road tar to Road Board Specifications.

HIGHER GRADE.

PART II., from 6 p.m. to 9 p.m.

(Two questions in each of the two Groups should be attempted.)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

GROUP A.

1. (*a*) The tank of a gasholder is 150 ft. in diameter and 30 ft. deep to overflow. What thickness would the bottom belt of plates require to be? Explain factors used in your calculation.
   (*b*) Describe the construction of a telescopic cup and grip with guide rollers attached for either a frame or a spiral-guided gasholder.
2. (*a*) Where gasholder pressure is inadequate, describe one type of machine used for boosting town pressure.
   (*b*) Describe the general arrangement of plant in governor house, showing governor, booster, valves, by-passes, and connections you consider necessary.
3. Describe the construction and action of one type of apparatus for indicating, at the works, the pressure at a point three miles distant.

GROUP B.

4. (*a*) Describe a method of removing naphthalene from coal-gas, and give the approximate quantity of washing medium used per million c.ft. of gas treated.
   (*b*) Give particulars of any other effects which the process may have on the gas.
5. (*a*) State the conditions to be observed for the satisfactory working of a sulphate of ammonia saturator.
   (*b*) What is the cause of "blue" salt?
   (*c*) A plant produces sulphate containing 0·3% by weight of free acid. Calculate the theoretical amount of ammonium bicarbonate required to neutralize the acid in one ton of salt. (N = 14, O = 16, S = 32, C = 12, H = 1.)
6. (*a*) Describe the construction of a Lancashire boiler furnace adapted for burning coke breeze (0 in.-¾ in.).
   (*b*) Give the calorific value and proximate analysis of the coke breeze used.
   (*c*) State approximately the quantity of steam which would be evaporated per lb. of such breeze.

DIPLOMA EXAMINATION IN GAS ENGINEERING (Manufacture).

PART I., from 2 p.m. to 5 p.m.

(Four questions only should be attempted.)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

1. A carbonizing bench is capable of giving a gross daily output of 2 million c.ft. of gas having a gross calorific value of 525 B.Th.U. per c.ft., when all retorts are working on a twelve hour charging cycle.
   (*a*) Give an outline sectional sketch of a breaking and handling plant to crush, elevate, and distribute the coal from railway wagons to suitable coal storage bunkers. Assume that the coal is to be elevated to a height of 80 ft. above rail level.
   (*b*) Describe the plant you recommend and give reasons for your selection.
   (*c*) Specify the horse power required and the capacity of each unit comprising the whole installation, and state the storage capacity of the overhead coal bunkers.
2. Show in tabular form the way in which the available heat of the producer fuel is utilized and dissipated during the process of carbonization, and express the results:
   (*a*) As a percentage on the coal carbonized, and
   (*b*) As a percentage on the coke fed into the producer.
   State fully your assumptions, and comment on the commercial advantages of a carbonizing system with and without a waste-heat boiler.
3. Describe the advantages to be gained by separating coke as made into two sizes, say, above and below 2 in. (scalping)

and subsequently dry cleaning the smaller size. Sketch and describe the plants required for these operations and state their relative positions in a coke cutting and grading installation.

4. Discuss any *three* of the following:
   (*a*) The economics of compressed gas for transport.
   (*b*) Gum deposits in gas distribution systems.
   (*c*) Wind pressures in relation to gasholders.
   (*d*) The economics of benzole extraction.
   (*e*) Inhibitors for motor benzole.
5. State the forces operating at the junction of the side and crown sheeting of a trussed gasholder 150 ft. diameter, and sketch in detail, giving dimensions, suitable means of attachment of top kerb, vertical stays, principal rafters, &c., and give reasons in explanation of any particular form of construction which you may adopt.

PART II., from 6 p.m. to 9 p.m.

(*Four questions only should be attempted.*)

1. Describe a low-temperature carbonization process and compare its economics with high-temperature practice.
2. Does practice show that the normal gas-works can meet the whole of its process and power requirements by means of waste-heat steam? Give full particulars in your answer. How is waste-heat recovery from hot coke effected and state the pounds of steam per ton of coal carbonized you would expect to obtain?
3. (*a*) What do you understand by and give typical applications of the following?
   (i.) Raft foundation.
   (ii.) Piles cast *in situ*.
   (iii.) Guniting.
   (*b*) What maximum load in tons per sq. ft. would you specify for a gasholder to be erected on a slab foundation built on clay soil?
4. Discuss the various features of works control that make for a low inert content in the finished gas, and explain the importance and effect of each inert constituent on works costs and upon the final combustion. Assume oxygen as an inert.
5. Describe an electrostatic precipitator and its operation.
   (*a*) Where would you erect this apparatus in the gas stream?
   (*b*) State voltage of electric current required to operate and power absorbed.
   (*c*) Give efficiency of tar removal.
   (*d*) Give efficiency of water removal.
   (*e*) Is quality of gas affected?

GAS SUPPLY.

ORDINARY GRADE.

From 2 p.m. to 5 p.m.

(*Two questions in each of the three Groups should be attempted.*)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

GROUP A.

1. What are the advantages and disadvantages of cast-iron, spun iron, and solid-drawn steel tubes for gas mains, and wrought-iron and mild steel for house pipes?
2. Describe how you would test a 6 in. main 1,000 yards long for soundness.
   Show how you would calculate the rate of leakage, if any, from the data you obtain.
3. How would you proceed to clear mains obstructed by:
   (*a*) Corrosion.
   (*b*) Naphthalene.
   (*c*) Water.

GROUP B.

4. A service pipe supplying gas to a block of flats has to be relaid from main to riser. What tools and fittings would be needed.
   State how you would proceed so as to avoid risk and inconvenience to the consumers.
5. Describe the effect of variations in pressure on the working of any one gas appliance.
   What steps may be necessary, in a district of varying pressure, to ensure that gas appliances receive a satisfactory supply of gas at all times?
6. Explain the following:
   (*a*) Flux of light.
   (*b*) "Smothering."
   (*c*) Distance control.
   (*d*) Infra-red radiation.

GROUP C.

7. Describe, with the aid of a sketch, one form of thermostat used on gas appliances.
   Mention any other types of thermostat you know, stating the principles upon which they work.
8. What is meant by "recuperation" when referring to a gas-fired furnace?
   How is it achieved, and what is its effect upon the working of the furnace?
9. Sketch a gas lamp suitable for illuminating a large picture 8 ft. by 5 ft., hanging against and parallel with a wall, and give its polar curve. Show how you would fix the lamps in relation to the picture and calculate the illumination at the centre of the picture.
   What would you regard as a suitable illumination for pictures?

HIGHER GRADE.

PART I., from 2 p.m. to 5 p.m.

(*Two questions in Group A and three questions in Group B should be attempted.*)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

GROUP A.

1. A building estate has to be supplied with gas from a distributing centre three miles away. The maximum demand will be 40,000 c.ft. per hour and a pressure of 5 in. must be maintained at the centre of the estate. This may be done in the following ways:
   (i.) A 12 in. main with an initial pressure of 12 in. W.G.
   (ii.) An 8 in. main with an initial pressure of 3 lbs. per sq. in.
   (iii.) A 4 in. main with an initial pressure of 40 lbs. per sq. in.
   (*a*) Describe the gas compressing plant suited for each set of conditions.
   (*b*) What points would you take into account in determining the most economical size of main to employ?
2. Give a full account of the relative merits of gas and electricity for:
   (*a*) Cooking.
   (*b*) Water heating.
3. Assume gas of the following composition is mixed with twice the quantity of air necessary for its complete combustion:

Carbon dioxide	2·6%
Oxygen	0·8 ,,
Unsaturated hydrocarbons	2·4 ,,
Carbon monoxide	12·7 ,,
Hydrogen	46·6 ,,
Methane	25·0 ,,
Nitrogen	9·9 ,,

   What would be the calorific value in B.Th.U. per c.ft. of the mixture?
   How much air per c.ft. of gas would you expect to find in the mixture formed in a good gas fire burner?

GROUP B.

4. Give your recommendations for the installation of gas water-heating equipment to supply four showers and four lavatory basins in a sports pavilion. Draw a diagrammatic layout of the complete installation, and give approximate weekly running costs, assuming that 48 players use the hot water once each week over a period of two hours with gas at 6d. per therm.
5. How would you test thoroughly a thermostatically controlled gas oven to ensure that it is satisfactory in every way?
6. An arterial road 120 ft. wide and 3½ miles long is to be lighted by gas. There is a footpath on either side of the carriageway and a narrow grass verge in the middle. Give full details of a scheme for illuminating this road, including spacing/height ratio, approximate polar curve of light distribution from suggested lamps, and minimum illumination.
7. State your views regarding domestic portable heaters from practical and scientific points of view, with special reference to safety and hygiene.

PART II., from 6 p.m. to 9 p.m.

(*Two questions in Group A and three questions in Group B should be attempted.*)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

GROUP A.

1. What are the causes of internal and external corrosion of gas mains and service pipes, and what steps could be taken to protect them?
2. A consumer requires a furnace for carburizing gears. State what you know of the process and the type of furnace you would recommend, giving a gas consumption for the size you specify. Can automatic control apparatus be applied to such a furnace? State what should be controlled and the tests to be applied to ensure satisfactory working.
3. Gas is delivered from A to B, a distance of three miles. The first two miles is of 18 in. pipe, the last mile is of 12 in. pipe. A and B are at datum level and C (the point where the main changes in diameter) is 100 ft. above datum. The pressure at A is 10 in. and at B is 4 in. What is the pressure at C?
   The gas may be assumed to have a specific gravity of 0·5 and water may be taken at 800 times as heavy as air.

GROUP B.

4. What is your view regarding the advantages and limitations of service governors?
   Draw a graph showing the possible variation of pressure in a district main over a period of 24 hours, and explain

how you would use this to determine a suitable outlet pressure for the service governors.

5. What may be the causes of and how would you remedy the following complaints:
   (*a*) 20 to 30 seconds time lag before hot-water is drawn from a tap served by a distributing geyser with automatic gas and water valve.
   (*b*) Condensation in kitchen where a low-consumption storage heater is fixed.
   (*c*) Failure to light up of a public street lamp fitted with governor and clock control.
   (*d*) Excessive time taken to freeze water in a refrigerator?

6. Sketch with approximate dimensions and describe one form of apparatus suitable for making tea in a good class restaurant.
   What gas consumption and amount of boiling water would you allow for the heater described, and what special provision for maintenance would you make?

7. An estate of 600 houses is to be developed at the end of a 12 in. main. Each house is to be piped for cooker, copper, geyser, and four fires. Without making detailed calculations, mark on the *accompanying plan* the sizes and positions of mains and connections you would recommend.

Estate Plan

Higher Grade Examination in Gas Supply.
Paper II.—Question 7.

What, in your opinion, would be the maximum and average consumption per house on an average (*a*) winter's day and (*b*) summer's day?
Set out instructions to fitters for carcassing.

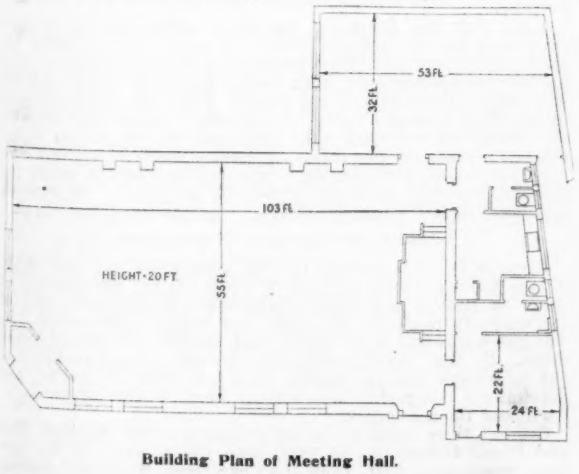
DIPLOMA EXAMINATION IN GAS ENGINEERNIG (Supply).

PART I., from 2 p.m. to 5 p.m.

(*Three questions only should be attempted.*)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

1. It is known that a trunk main running along an electric tramway route has been attacked by stray electric currents.
   State fully what you know of this source of danger and state how you would investigate the matter with a view to locating the trouble and providing a remedy.



Building Plan of Meeting Hall.
Part I.—Question 4.

2. Write notes on:
   (*a*) Electric vapour discharge lamps.
   (*b*) A process of vitreous enamelling.
   (*c*) Town gas for internal combustion engines.
   (*d*) The electric "grid."

3. A high-pressure transmission scheme is recommended for the supply of gas into the low-pressure distribution system, two miles distant from the works.
   (*a*) Starting with the compressor at the gas-works, describe fully plant and materials you would suggest, giving line sketches.
   (*b*) Give reason for selecting type of governor or governors you favour.

4. From the *accompanying plan* of a meeting hall prepare a complete scheme for the installation of a gas-fired central heating system. State total heating surface required, the number of radiators, size of boilers, and details of equipment you would provide and the running costs with gas at 5·25d. per therm.
   Indicate on the plan the position of the radiators and boilers and state the case for your scheme in competition with electricity at 0·675d. per unit *plus* annual standing charge of £12, and with oil at 90s. per ton.

PART II., from 6 p.m. to 9 p.m.

(*Three questions only should be attempted.*)

Simple sketches, roughly to scale, should be used wherever possible to obviate long and involved statements.

1. (*a*) In testing the following appliances what points would you determine?
   (i.) Gas fire.
   (ii.) Thermal storage heater consuming 10 c.ft. per hour.
   (iii.) Thermal storage heater consuming 55 c.ft. per hour.
   (*b*) Give a brief description of the methods of test you would use and the probable results.
   (*c*) State typical heat balances for each of the appliances.
   Composition of gas is as follows:

CO_2	2·6%
O_2	1·0 ,,
C_nH_m	3·4 ,,
CO	13·2 ,,
CH_4	22·9 ,,
H_2	47·7 ,,
N_2	9·2 ,,
	100·0 ,,

2. Discuss briefly the present position of the Gas Industry as a supplier of fuel to manufacturers for industrial processes, indicating particularly its position in relation to competitors.

3. Prepare a scheme for completely equipping a stove repair shop capable of renovating 500 gas appliances (cookers, fires, water-heaters, governors, lamps, &c.) per day, carrying out all material routine testing, and paint-spraying cookers and fires. Give instructions for operation of paint-spraying equipment.

4. Give a summary of the following Acts as affecting Gas Supply Practice:
   Gas-Works Clauses Acts, 1847 and 1871.
   Gas Regulation Act, 1920.

Primitiva Holdings, Ltd.

The Directors' report of Primitiva Holdings, Ltd., for the year ended April 30, 1934, states that the net profit for the year is £134,382, out of which there has been paid the dividend (*less* income-tax at 5s. in the £) on the 6% redeemable cumulative preference stock for the year ended Dec. 31, 1933, amounting to £11,194, leaving a balance of £123,187. Deducting from this sum the dividend (*less* income-tax at 4s. 6d. in the £) and the sinking fund accrued April 30, 1934, on the 6% redeemable cumulative preference stock amounting to £4,303, there remains a balance of £118,884, out of which the Directors recommend that a dividend of 2% per annum (*less* income-tax at 4s. 6d. in the £) be paid on the ordinary stock, absorbing £36,749, leaving a balance of £82,135. Adding balance brought forward from last year, £26,520, there is a total of £108,655, which the Directors recommend should be carried forward.

Owing to restricted operations the profits of the Buenos Aires Industrial Supply Company, Ltd., showed a decrease compared with those for 1932. The Province of Buenos Aires Gas Company, Ltd., made a small profit, which has been applied to the consolidation of the business. During the year the Primitiva Gas Company subscribed for quota of Argentine Government 4% Sterling Bonds, issued pursuant to the Convention dated May 1, 1933, between the Governments of the United Kingdom and the Argentine Republic. The Primitiva Gas Company paid a dividend of 5% in these bonds.

Although, having regard to the difficulties of operating and to the heavy losses in exchange, the results shown by Subsidiary Companies are not unsatisfactory, the Board are faced with the necessity for conserving the Company's resources during the present difficult times. They regret, therefore, that they are unable to recommend a larger dividend than 2%, although, if the Argentine conditions do not become worse, they hope to maintain this dividend next year.

Bournemouth Gas and Water Company

Extraordinary General Meeting

An Extraordinary General Meeting of the Bournemouth Gas and Water Company was held at the Offices of the Company, 48, Copthall Avenue, London, E.C. 2, on Friday, May 11—Mr. WILLIAM CASH (Chairman of the Company) presiding.

The notice convening the Meeting having been read,

The CHAIRMAN said: This meeting has been called to approve a Draft Order to be presented to the Board of Trade to enable the Bournemouth Company to take over two relatively small undertakings now operated by the Ringwood Gas Light and Coke Company, Ltd., and the Lymington Gas and Coke Company, Ltd. The second Company is a Statutory Company with a defined area. The issued capital of the Ringwood Company is £4,800, and the Bournemouth Company will acquire that undertaking by the issue of stock in the Bournemouth Company carrying a dividend of 7%, which will return to the Ringwood Company the equivalent of 12½% on their issued capital. In the case of the Lymington Company, there are two classes of existing capital—viz., £5,000, carrying a dividend of 10%, and £4,640, carrying a dividend of 7%. The Bournemouth Company will, under the proposed arrangements, issue 7% stock to return precisely the same dividend to the shareholders of the Lymington Company which they are at present enjoying, but those shareholders will retain capital of a character with a higher marketable value, and have the security of the whole Bournemouth undertaking, including the water undertaking. In both cases provisions are inserted in the Draft Order for compensation to the Directors and Auditors of the existing Company on what has come to be the usual basis, and also compensation to the two Managers of the respective Companies.

The policy of the larger gas undertakings taking over the smaller undertakings has been proved in many cases in recent years. It has the advantage of giving to the smaller undertakings the existing organization and methods which are available to a progressive and modern undertaking and which are not possible in the case of the smaller companies carrying on a relatively small business. It also has the advantage, which is apparent in this case, of giving the consumers a reduction in the price of gas. In the two instances now under consideration, the Ringwood consumers will have the price of gas reduced immediately from 5s. 5d. per 1,000 c.ft. to a trifle over 4s. 8d. per 1,000 c.ft., or a reduction of 8¾d. per 1,000 c.ft.; and on the same basis the Lymington consumers will obtain an immediate reduction of 6¾d. per 1,000 c.ft., with corresponding advantages if reckoned on the therm basis. The combined output of the two undertakings for the last completed year was about 44 million c.ft. of gas, and it is intended that ultimately the gas supplied in these areas will be supplied from the Poole works of the Bournemouth Company. The shareholders will know that already the existing mains of the Bournemouth Company extend very nearly to the areas to be taken over, but there will be some expense in making complete connection.

EXTENDED AREA OF SUPPLY.

The Directors have come to the conclusion that while these extensions are being considered it would be wise for the Bournemouth Company to extend the limits of supply not only to include the Ringwood and Lymington areas but also a certain amount of other area closely adjacent thereto, and so round off in a suitable manner the present and extended limits of supply. The Order which is being considered to-day gives effect to these proposals and authorizes a differential price in the outside area of not more than 4·3d. per therm, bringing the outside maximum price, based on the existing Bournemouth price, to 12½d. per therm. The Order provides for the creation of the additional amount of stock necessary to give effect to the proposals without using the existing capital powers of the Bournemouth Company. The other clauses in the Order are all machinery giving effect to the proposals which I have outlined to you. We feel confident that if the Board of Trade sanctions the Order it will be a benefit to the consumers in the areas taken over, it will add to the output of the Bournemouth Company, with which it can easily deal, and it will also be to the advantage of the shareholders of all three undertakings.

The CHAIRMAN then moved:

> That the Draft Special Order as submitted to this meeting, for which application is being made to the Board of Trade under the Gas Undertakings Acts, 1920 and 1929, to authorize the acquisition by the Company of the undertakings of the Ringwood Gas Light and Coke Company, Ltd., and the Lymington Gas and Coke Company, Ltd., the extension of the Company's area of supply, and for other purposes, be and the same is hereby approved, subject to such alteration as the Board of Trade may make and as may be approved by the Directors of the Company.

The DEPUTY-CHAIRMAN (Sir Charles Morgan) seconded the resolution, which was carried unanimously, and the meeting then closed.

Sheffield Gas Company's Bill

South Yorkshire Gas Grid Scheme

House of Lords Committee—Before Lord AMULREE *(Chairman), Lord* ERSKINE, *Lord* SANDYS, *Lord* O'HAGAN, *and Lord* SWINFEN.

The rather lengthy Committee proceedings on the Bill promoted by the Sheffield Gas Company commenced on Tuesday, May 8. The Bill has been promoted, it was stated, because the United Steel Companies has contracted to supply coke oven gas to an associated works within the area of supply of the Sheffield Gas Company, which latter is responsible for the development and operation of the South Yorkshire gas grid scheme, for which powers were obtained in 1931, for the purpose of collecting the surplus coke oven gas from the plants in the district and distributing it to users. It was alleged that there had been a breach of the understanding arrived at in 1931.

The main clause in the Bill, therefore, provides that no person other than the Sheffield Gas Company, except with the written consent of the Company, shall supply coke oven gas within its limits of supply. There were saving provisions, one of them providing that a person producing coke oven gas should not be prevented from using it for the purpose of any business carried on by him on the same land or on land adjacent thereto.

Counsel for the Bill were Mr. W. E. Tyldesley Jones, K.C., Mr. F. J. Wrottesley, K.C., and Mr. J. H. Thorpe, O.B.E.

There were petitions against the Bill, as follows: West Riding County Council, represented by Mr. W. Craig Henderson, K.C.; United Steel Companies, Ltd., and Samuel Fox & Co., Ltd., represented by Mr. W. Craig Henderson, K.C.; National Association of Coke and Bye-Product Plant Owners, represented by Mr. Jacques Abady; Yorkshire Electric Power Company, represented by Mr. Craig Henderson, K.C.; South Yorkshire Gas Grid Company, Ltd., represented by Sir Lynden Macassey, K.B.E., K.C., and Mr. Maurice Fitzgerald; Mining Association of Great Britain, represented by Mr. F. G. Thomas, K.C., and Mr. Jacques Abady.

Mr. TYLDESLEY JONES, K.C., whose opening speech occupied the first day and half of the next, said the matter was one which involved big national interests, because it affected the scheme, advocated by Committees set up by the Government, to assist industry in South Yorkshire. The outcome of their recommendations was that the Sheffield Gas Company had promoted a Bill to establish a gas grid to enable coke oven gas, which was largely being wasted, to be put to commercial use, thereby assisting not only the steel trade, who desired cheap gas for various processes, but also the coke oven owners by obtaining a market for their gas, thereby to put them in funds again so that they could improve the coke ovens, which admittedly had fallen far behind the standard of efficiency to be found on the Continent. The Sheffield Gas Company had already expended a large sum of money in trying to bring the scheme to fruition, and were still spending large sums for that purpose.

Since 1917 the Company had been authorized to purchase coke oven gas by contract within an area which extended beyond its ordinary gas supply limits, and could lay mains for that purpose within the coke oven limits, but could supply the gas only within the ordinary gas limits. Following representations by the West Riding County Council, the Company had accepted the obligation to supply coke oven gas in bulk to gas undertakings outside its own limits of supply, where it had laid coke oven gas mains, provided there was sufficient left to satisfy the demands for coke oven gas within its gas limits. Agreements had been made for supplies of coke oven gas to various works.

PRACTICALLY GIVEN UP MANUFACTURE.

Because it was cheaper to buy coke oven gas and purify it, the Company had practically given up the manufacture of gas. In 1930 it had made 473,889,000 c.ft. (roughly, 10% of the quantity made in 1919), but had bought 4,754 million c.ft. The gas-works had to be maintained, however, in case of breakdown. So that the Company had become a good customer of the coke oven owners, buying what was formerly wasted, and obtaining a commodity which could be used with advantage to itself and its consumers.

Counsel then recalled the appointment of the National Fuel and Power Committee, in 1926, from whose report it was seen that, emanating, first, from the Coke Oven Managers' Association, and, secondly, from other people involved, co-operation

between gas undertakings and the coking interests was recommended as being in the interests of both, and affording an outlet for the coke oven gas which modern efficient coke ovens could produce in increased quantities. The recommendation was accepted by the Government, the Departmental Committee on Area Gas Supply was appointed, and its report, dated March 31, 1930, had received the immediate attention of the coke oven owners and the Sheffield Gas Company. The South Yorkshire Gas Grid Company had been formed by the main coke oven owners in the district, its first object being to promote and secure the formation and carrying on of a grid scheme for the distribution in bulk of coke oven gas, and to deal in gas, lay mains, and apply for statutory powers. It was really a nominal Company, with a capital of £5,000, created to represent the coke oven owners and to be a medium of action on behalf of them all. All the shares were held by the coke oven owners, who were called the constituent members.

In August, 1930, the Sheffield Gas Company had applied to the Board of Trade for an Order to enable it to construct a grid for collecting the gas in accordance with the recommendations of the Area Committee. That Order was objected to by the Grid Company, which was about to promote a Bill for the purpose. The Gas Company had then considered it desirable, if the matter were to come before Parliament on the Grid Company's Bill, to promote a Bill also, rather than to proceed with the Order, so that one Parliamentary Committee might have the two schemes before it. The Grid Company's Bill proposed to incorporate the South Yorkshire Gas Network Company, and it was a Company in which the Gas Industry might not have taken an interest. It could not have competed with the Sheffield Gas Company, for it could have supplied in the Gas Company's area only with the consent of the Gas Company. They had realized, as had the Area Committee, that the proper way to carry out the supply to the industrial consumers was through authorized gas undertakers. The Sheffield Gas Company, by its Bill, sought to enlarge its coke oven gas limits and to extend its powers to supply coke oven gas, by agreement. So that it was recognized by both Companies, in bringing forward network schemes, that the supplies to consumers must be given with the local gas undertakings' consent; there was to be no competition with the local gas undertakers without their consent.

Competitive Bills.

The two Bills were competitive; the Board of Trade had intervened, and a conference was arranged between the promoters, an official of the Board presiding. It was agreed that the Sheffield Company's Bill should proceed and the coke oven owners' Bill should be dropped, the Gas Company to have the responsibility for the grid; it was to buy the gas it required from the Grid Company, which was to act as the medium between the coke oven owners and the Gas Company, and must buy from nobody else unless it could not obtain the gas from the Grid Company, subject to the provision that it could continue its existing contracts.

The attitude of the Sheffield Gas Company was that, until it wanted the coke oven gas, the coke oven owners were still free to dispose of it to others, including gas undertakers inside the Gas Company's coke oven gas limits.

An agreement was made, and it contained a clause to the effect that the sellers or any of their constituent members should not be precluded or restricted from selling or otherwise disposing of, to any authority, company, body, or person, any gas belonging to the sellers or produced by any of their constituent members and which was not for the time being the subject of any option granted or contract made under the agreement.

Some of the constituent members, and in particular the United Steel Company, now claimed—he did not think the Grid Company would dare to claim it—that, notwithstanding the events of 1931, they were entitled to construct what was practically a grid alongside the Gas Company's grid, to give a supply of gas from it direct to consumers in the Gas Company's area, and leave the Gas Company high and dry. If Parliament were to allow that, the utility of the grid would be very different from what was intended, and its purpose could not be properly carried out.

The Sheffield Gas Company had agreed to buy coke oven gas from the Grid Company at 5½d. per 1,000 c.ft.; and that was in the interests of the coke oven owners. Some individual producers might have obtained a higher price if they were dealt with individually; but, on the other hand, in the latter event some might have been left out in the cold, and there might have been competition between them.

With regard to the United Steel Company, it had supplied gas from its coke ovens at Orgreaves to the Gas Company under an agreement arrived at in 1919, and the Gas Company had spent £22,000 on the necessary main. The price varied from 5½d. to 9½d., according to the calorific value of the gas, and the currency of the agreement was 10 years, after which it was terminable at six months' notice. Unfortunately, negotiations with regard to price were not successful, the Sheffield Gas Company had ultimately given notice to terminate the agreement, and the supply was discontinued in January, 1933. Subsequently, the Gas Company had offered 6½d. per 1,000 c.ft., but the representative of the Steel Company had pointed out that, if an agreement were made, it would be a new agreement and not a continuation of the old agreement, and, under the terms of the Sheffield Gas Company's 1931 Act, that Company was bound to buy coke oven gas from the Grid Company, and could not buy it from the Steel Company.

Then an arrangement was made for the United Steel Company to sell direct to the Tinsley Wire Works, which was in the Gas Company's area, and with whom the Sheffield Company had been negotiating to give a supply. When Mr. Halkett (General Manager and Secretary to the Gas Company) was told about it he was upset that one of the constituent members of the Grid Company should be seeking to snaffle his consumers away. While the Sheffield Company was waiting to hear from the United Steel Company, which was approaching the Grid Company to find out whether it could give the Gas Company a supply of gas, the Steel Company was going to the Tinsley Works behind the Gas Company's back to sell the gas. Legally the Gas Company could not stop that. So that the United Steel Company claimed the right to supply to the Gas Company's consumers, and the Gas Company had to ask Parliament to give it the protection which a Court of law could not give.

Wednesday, May 9.

It must be obvious, continued Counsel, that a coke oven works could supply its gas through a short length of main to a particular user more cheaply than the Sheffield Gas Company could supply, for it had been entrusted by Parliament with the laying of the grid, involving not only a large trunk main but a network of mains throughout South Yorkshire. If coke ovens were to undersell the grid, it appeared to strike at the root of the arrangement. The gas could not be brought to the industries of Sheffield except by means of a comprehensive system of mains, and the general interests could not be served except by such a network. For the general good of the district and the coke oven industry it must be carried out in the spirit underlying the whole arrangement. It would not do to have some of the suppliers, for their own pecuniary benefit, reducing the volume of gas with reference to which the whole scheme had been laid out. The obligation was to provide mains, not of such size as the Gas Company might want, but of a size which would take the whole of the surplus gas in the area. The Company had constructed part of the grid and was constructing more. A certain volume of coke oven gas was taken away from it, and there had also been taken away from the Company an industrial consumer, for the supply to whom the Company had undertaken obligations. The Company was threatened with a continuance of that policy, and the United Steel Company had contended that the Gas Company had committed a breach of the 1931 agreement by asking Parliament to prevent its continuance.

The Area Gas Committee, in recommending a gas grid for the area, had pointed out that there was an element of speculation in the proposal and its estimates were based on the surplus gas being passed through the grid. "Surplus gas" meant all the gas not used by the coke oven owners at the coke ovens. Although the Grid Company had told Parliament that it was intended that all the constituent members should be bound by agreement between themselves and the Grid Company, it was now known that the United Steel Company and Messrs. Samuel Fox & Co.—an associated concern—had not made agreements but had left themselves free to sell their gas to the highest bidder and to compete with the Gas Company in its area of supply. The Gas Company had relied on the intention expressed by the Grid Company, but that intention had not been carried out fully, and he did not know to what extent it was carried out. And the Sheffield Gas Company was bound not to buy gas except from the Grid Company (apart from existing agreements) unless it could not obtain it from the Grid Company. It was bound by agreement to use its best endeavours to promote the use of gas for industrial purposes, and was doing it successfully; yet when, by selling gas at 2d. per therm, the Gas Company induced a consumer to convert his works to the use of gas, the United Steel Company could offer him, when the current contract came to an end, a cheaper supply because it had not to carry the interest charges on the gas grid.

There was a case here for interference by Parliament, for it was not merely a question as between the private interests of the Gas Company and the Steel Company. The grid was not constructed to serve the pecuniary interests of either; the real interest and justification for it was the public interest. Right at the bottom of the scheme was the consideration that the coking industry in this district required assistance; one great point emphasized by the Coke Managers' Association and by everybody since was that if the coke oven industry were to be assisted—and, after all, it was an industry subsidiary to the collieries—it must be given an outlet for its gas. The Gas Company asked for freedom to press forward the use of gas for industrial purposes, as it had undertaken to do. When the agreement was arrived at in 1931 neither side had envisaged the sale of the surplus gas to anybody but the gas undertaking, and no one had contemplated this invasion of its area of supply. Parliament had never yet hesitated to provide a remedy for anything contrary to the public interest, and there were plenty of precedents for intervention by Parliament; in this connection he quoted examples relating to motor transport, electricity supply, petroleum production, &c. Regard must be had also to the conduct of the parties, and Parliament had even repealed statutory powers for the supply of gas where they considered it to be in the public interests.

A Breach of the Understanding?

In referring to the petition of the United Steel Company and Messrs. Samuel Fox, Counsel emphasized that it was the intention that all the constituent members of the Grid Company should enter into agreements, and he ventured to say that it was a gross breach of the whole understanding with the Gas Company that some of the constituent members had been left

out. The Steel Company had stated that they were to hold their gas at the disposal of the Grid Company except so far as they wanted it for their own works or constituent companies; but that was their own invention. The Gas Company was under obligation to supply purified gas within its limits of supply; it could supply unpurified coke oven gas to industrial users if the latter agreed to take it, but the Company could not compel them to do so. Further, it was under regulation by Parliament. But the Steel Company was unregulated with regard to gas supply; it could make any profits it liked and could supply quite regardless of safety.

He referred to other petitions, in which reference was made to a monopoly by the Gas Company, and he pointed out that it could not supply outside its area. With regard to the point made by the West Riding County Council, that this Bill would prevent private manufacturers, and gas undertakers outside the Sheffield Company's limits, obtaining supplies of coke oven gas, he said it was interesting to recall that at the request of the County Council the Company had undertaken to give bulk supplies to statutory gas undertakers, and he suggested that the County Council was trying to do something which might strangle the grid experiment in its initial stages.

The Yorkshire Electric Power Company mentioned a supply of coke oven gas it was obtaining from a colliery for use at its Barugh generating station; but that was not within the Sheffield Company's area. Another point was that it might be necessary in the future to establish a generating station within the Sheffield Company's area, in which event it would require to be in a position to secure a supply of coke oven gas, and the Bill would prevent that, except with the Gas Company's consent. Counsel's reply to that was that the Power Company could not erect a station anywhere without the consent of the Electricity Commissioners, and, having regard to the electricity grid, the chance of its being able to put up a new station in the Sheffield area was remote.

Sir *Alexander Walker* (a member of the National Fuel and Power Committee, and Chairman of the Area Gas Supply Committee), who gave evidence in support of the Bill, said that only one gas grid was visualized. He emphasized the point that, in order to render the scheme economical, there must be a certain volume of gas passing through the grid, and it was difficult to understand the suggestion that there could be competition with the Gas Company. If any of the gas, surplus to the requirements of the coke oven owners, was not passed through the grid, the cost of transporting the smaller quantity of gas through it must increase. It was difficult to see how it was possible to put down the capital for a grid of this sort unless one was sure of the whole of the surplus gas going into it, and of the complete control of the sale. If gas were to be put into it to-day and sold otherwise to-morrow, the economic results were bound to be affected.

In the course of cross-examination, Sir Lynden Macassey, K.C. (for the Grid Company), asked if it were really suggested that, where two or three companies were associated together for one common industrial purpose, one of them should be deprived of the right to supply its surplus coke oven gas to another. Sir Alexander replied that it was a matter of degree, and that it was difficult to define the word "association."

In reply to further questions, he said he did not think the suppliers should accept *any* conditions which the grid might suggest; he believed they had the right to appeal.

Thursday, May 10.

The CHAIRMAN asked what manufacturers would do if the production of coke oven gas was greater than the Gas Company could take. Would a proportion be taken from various plants, or would one or two manufacturers be left out?

Sir *Alexander Walker* maintained that if the Gas Company could not absorb all that was produced, the producer was at liberty to sell where he liked, so long as he did not sell within the area of the Gas Company without its consent.

The CHAIRMAN asked what a producer would do if there were no demand for a great quantity of gas.

Sir *Alexander Walker* replied that the producers had wasted coke oven gas in the past to a great extent; the grid had already provided an outlet, and he visualized that in a very short time there would not be enough coke oven gas to go round.

The CHAIRMAN asked whether the Gas Company could pick and choose as to whom it should take gas from. If a proportion of the plants produced all that was required by the Gas Company, what would be done with the gas produced by the remaining plants?

Sir *Alexander Walker* again asked what they had done in the past. The propaganda that was being conducted to stimulate the demand for gas would facilitate matters, and it could not be long before the mains were extended to absorb all the gas. He considered it unwarranted that, within the Gas Company's area, where facilities were provided, anyone should have the right to short-circuit the grid.

The CHAIRMAN asked whether, if another producing plant were established Sir Alexander would favour the view that it should be regulated similarly to those existing.

Sir *Alexander Walker* replied that he would, so far as supply inside the gas area was concerned. If it could sell to the Gas

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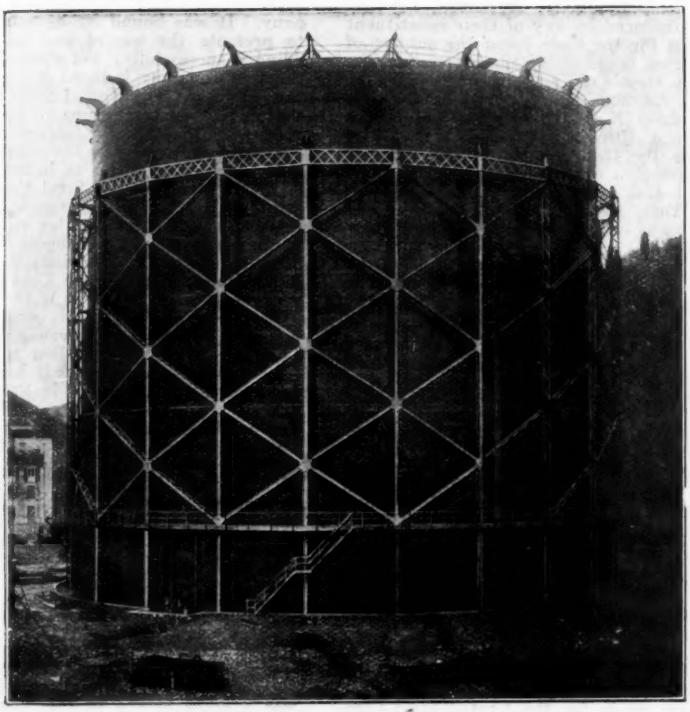

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Company, which had spent the money on the mains, it should do so; but otherwise, if it could find a buyer where the Gas Company had refused to provide mains, it must have some freedom of action.

Lieut.-Col. *H. K. Stephenson*, D.S.O. (Chairman of the Sheffield Gas Company), who also gave evidence, said that ever since he had been concerned with the Company—and he had first become a Director in 1896—it had sold the cheapest gas in the country, or the second cheapest. The Company had entered into three contracts with the Grid Company for the supply of coke oven gas, and applications for further options had been made. During the past winter the demand for gas had rather exceeded the Company's coke oven gas supplies, and the Company had fixed up a contract for the supply of 100 million c.ft. per annum to one consumer and had inquired into another contract to supply 1,200 million c.ft. per annum. Thus, options would be required to the further supplies through the Grid Company. As trade recovered, he hoped the Company would be able to take all the coke oven gas available.

The Company would not have continued the negotiations in 1931 if it had thought that those who were to co-operate were really going to be competitors. That was never dreamed of. The United Steel Company, who had not renewed its former agreement for the supply of coke oven gas to the Company, had laid two mains, one of which had entered the Company's limits of supply, and he regarded that as a flagrant violation of the agreement of 1931. It had refused the Gas Company's offer of 6½d. per 1,000, which the Grid Company would have allowed them to accept by reason of renewing the earlier agreement. A direct supply from the Steel Company to one consumer in Sheffield was not fair to other consumers, because the length of main was short and the interest on the capital expended was a bagatelle as compared with the interest on the capital expended on the network; the whole of the gas supplied from the network had to bear the cost of the capital charges.

Sir Lynden Macassey, K.C. (for the Grid Company), cross-examining, said that if it were intended, in 1931, that the coke oven gas producers were to have liberty to sell gas to gas undertakers and to no one else (within the Gas Company's coke oven gas limits), it was strange that that was not stated.

Col. *Stephenson* replied that he had stated it.

Sir Lynden Macassey said that the Gas Company was under no obligation to sell crude coke oven gas to consumers within its limits of supply, but could do so by agreement; and it could charge any price it liked.

Col. *Stephenson* replied that the Company could not charge any price it liked, for it had to compete with oil, electricity, and coal.

Sir Lynden Macassey said that a manufacturer might want a supply and might not be able to get it from the Company, or could only obtain it at a price which he considered too high.

Col. *Stephenson* replied that if the consumer thought that, he would be wrong.

Greater Quantities of Gas Available.

Mr. F. G. Thomas, K.C. (for the Mining Association), said the steel industry had been making very substantial progress, so that they might look forward to greater demands for coke; collieries might put down further coke oven plant and the quantities of gas available would be greater. Under the terms of this Bill the Gas Company sought to sterilize the district so far as securing customers other than the Gas Company was concerned. The Gas Company was asking to be placed in a position which was not held by any other gas undertaker in the country.

Col. *Stephenson* said he assumed that if new coke oven plants were installed, the owners would make judicious inquiries concerning the disposal of their gas. The Gas Company was asking for protection only in its area of supply, and by reason of the special circumstances.

Mr. Thomas pointed out that so far the grid was connected to only three coke oven plants, and that the owners of the other plants could not sell gas to the Company until the Company was ready to receive it, and had a demand for it.

Col. *Stephenson* replied that in the meantime they were at liberty to sell it elsewhere.

Mr. Craig Henderson, K.C., introduced himself as representing the United Steel Company, the bad boy of the family; it had been stated that the Bill was promoted because of the action of that Company, so that because one boy had been naughty the whole school was to be whipped.

Col. *Stephenson* replied that the Gas Company was becoming concerned about its position in this matter.

In reply to a suggestion that the Gas Company was not bound to buy gas from the Grid Company, witness said that in effect it was, because it must have coke oven gas, and could not secure it from anybody else.

Mr. Henderson emphasized that the Gas Company was not bound to supply crude coke oven gas to consumers within the area of supply who wanted it, and he suggested that consumers whose works were not near the main carrying the coke oven gas before it reached the purification works, would have no option but would have to take purified town gas, if they wanted gas at all, which gas cost more.

Col. *Stephenson* replied that it depended on the situation of the consumer's works.

[*Our report of the hearing will be continued next week.*]

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GAS MARKETS & MANUFACTURES

Stock Market Report.

[For Stock and Share List, see later page.]

Bright conditions prevailed in most sections of the Stock Exchange last week, and business veered from one section to another in accordance with varying influences, for speculative activity is still very much in evidence though underlying this is a steady demand for sound investments. The wild upward movement in rubber shares came to a sudden end on Wednesday when the first decisions of the Regulation Committee became known, and the market has now sobered down to more normal conditions. The gilt-edged section remained quiet but steady and refused to be influenced by the latest War Debts rumours.

The volume of business in Gas stocks and shares was not so heavy, though prices continued very firm and several substantial appreciations in value were recorded. Among these Imperial Continental ordinary advanced 6 to 215½; Brighton and Hove 6% preference gained 5 to 142½; Colonial 8% preference shares hardened 1s. to 24s. 6d.; and Gas Light units made a further advance of 3d. to 27s. Other than *ex* div. reductions, the only reactions occurred in South Metropolitan ordinary with a drop of 1 to 131½, and fractional falls in the ordinary and preference shares of the Cape Town Company.

In furtherance of its objects the South-Eastern Gas Corporation has made an offer to acquire the ordinary stock of the Chertsey Gas Consumers' Company as follows:

For each £100 (nominal) 10% standard ordinary stock of the Chertsey Company, now paying 11% per annum, either £245 in cash, or 183 South-Eastern Gas Corporation £1 ordinary shares. For each £100 (nominal) 7% standard ordinary stock of the Company, now paying 8% per annum, either £178 in cash, or 133 South-Eastern Gas Corporation £1 ordinary shares. For each £100 (nominal) 5% standard ordinary stock of the Company, now paying 6% per annum, either £135 in cash or 100 South-Eastern Gas Corporation £1 ordinary shares.

The report and accounts of the Primitiva Holdings, Ltd., whose principal subsidiary is the Primitiva Gas Company of Buenos Aires, Ltd., shows that for the year to April 30 last the net profits amounted to £134,382 (against £18,981 for 1932-33). After providing for the dividend on the preference stock there remains an available balance, including the amount brought forward, of £145,405, out of which the Directors propose to distribute a dividend of 2% for the year (against *nil*) on the ordinary stock, leaving the balance forward £108,655 (against £26,520). In view of the substantial increase in profit this distribution appears a meagre one, but the report states that the Directors are faced with the necessity for conserving the Company's resources through the present difficult period, and while they regret the small distribution it is hoped to maintain this rate for the current year.

Current Sales of Gas Products.

The London Market for Tar Products.

LONDON, *May* 14.

There is little change to report in the prices of tar products, which are as follows:

Pitch, 57s. 6d. per ton f.o.b.

Creosote, 3½d. to 3¾d. per gallon.

Refined tar, 4d. to 4¼d. per gallon in bulk at makers' works.

Pure toluole, 2s. 6d. to 2s. 7d.; pure benzole, 1s. 9d. to 1s. 10d.; 95/160 solvent naphtha, 1s. 8d. to 1s. 9d.; and 90/140 pyridine bases, about 6s.—all per gallon naked at makers' works.

Tar Products in the Provinces.

May 14.

The average prices of gas-works products during the week were: Gas-works tar, 24s. to 29s. Pitch—East Coast, 56s. 3d. to 58s. 9d. f.o.b. West Coast—Manchester, Liverpool, Clyde, 56s. 3d. to 58s. 9d.* Toluole, naked, North, 2s. 0½d. to 2s. 2½d. Coal-tar crude naphtha, in bulk, North, 6½d. to 6¾d. Solvent naphtha, naked, North, 1s. 5d. to 1s. 6d. Heavy naphtha, North, 10d. to 11d. Creosote, *ex* works, in bulk. North, liquid, and salty, 2¾d. to 3d.; low gravity, 3d. to 3¼d.; Scotland, 2¾d. to 2⅞d. Heavy oils, in bulk. North, 3¾d. to 4¼d. Carbolic acid, 60's, 2s. 2d. to 2s. 3d. Naphthalene, £10 to £11. Salts, 55s. to 75s., bags included. Anthracene, "A" quality, 2½d. to 3d. per minimum 40%, purely nominal; "B" quality, unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *May* 12.

The volume of new business placed during the week continues quite satisfactory, and prices are steady. In some departments there is a definite scarcity of supplies for prompt delivery.

Crude gas-works tar.—The actual value is 35s. to 37s. per ton *ex* works.

Pitch.—Value remains nominal at about 45s. to 47s. 6d. per ton f.o.b. Glasgow for export, and 45s. per ton *ex* works for home trade.

Refined tar is now moving to a greater extent, although value is unchanged at 3d. per gallon *ex* works naked.

Creosote oil is scarce for prompt, and prices are firm. B.E.S.A. Specification oil is 4d. to 4¼d. per gallon; low gravity, 4¼d. to 4¾d. per gallon; and neutral oil, 4¼d. to 4½d. per gallon—all f.o.r. in bulk.

Cresylic acid is well sold for prompt and forward. Quotations are firm. Pale, 97/99%, 1s. 2½d. to 1s. 3½d. per gallon; dark, 97/99%, 1s. to 1s. 1d. per gallon; and pale, 99/100%, 1s. 4d. to 1s. 5d. per gallon—all f.o.r. in buyers' packages.

Crude naphtha.—Prompt supplies are small, and value is unchanged at 4¾d. to 5¼d. per gallon, according to quality and quantity.

Solvent naphtha.—90/160 grade is 1s. 4d. to 1s. 4½d. per gallon, and 90/190 grade 8d. to 8½d. per gallon.

Motor benzole.—1s. 6d. to 1s. 7d. per gallon is being obtained for available supplies.

Pyridines.—Makers are well sold. 90/160 grade is 5s. to 5s. 3d. per gallon, and 90/140 grade 5s. 6d. to 6s. per gallon.

Benzole Prices.

These are considered to be the market prices for benzole at the present time:

	s.	d		s.	d.	
Crude benzole	0	9	to	0	9¼	per gallon at works
Motor "	1	4	"	1	4½	" " "
90% "	1	4½	"	1	5	" " "
Pure "	1	7½	"	1	8	" " "

Contracts Advertised To-Day.

Coal.

Barnoldswick Gas Department. [p. 410.]
Burton-upon-Trent Gas Committee. [p. 409.]
East Dereham Urban District Council. [p. 409.]
Ellesmere Port Urban District Council. [p. 412.]
Evesham Gas Department. [p. 410.]
Hoylake Urban District Council. [p. 410.]
Mansfield Gas Committee. [p. 410.]
Newbury Gas Undertaking. [p. 409.]
Padiham Gas Department. [p. 409.]

Lime.

Mansfield Gas Committee. [p. 410.]

Meters and Repairs.

Mansfield Gas Committee. [p. 410.]

Oxide—New and Spent.

Rochdale Gas Department. [p. 412.]

Pipes and Specials.

Rochdale Gas Department. [p. 412.]

Sulphuric Acid.

Mansfield Gas Committee. [p. 410.]

Tar.

Mansfield Gas Committee. [p. 410.]

Trade Notes.

Intermittent Vertical Ovens for Swindon.

Messrs. W. J. Jenkins & Co., Ltd., Retford, have just received an order from the Swindon United Gas Company for an installation of intermittent vertical chamber ovens capable of giving an output of over 1¼ million c.ft. of gas per day. The installation comprises two separate settings each of six chambers. The chambers will be capable of holding a charge of coal equal to 3·75 tons. This plant is arranged for future extension, and included in the contract is a new coaling plant with overhead distributing conveyor and storage bunkers capable of holding 48 hours' supply. This latter arrangement is extended also for the producer coke and the breeze for the pad. Additional also is a coke-handling and screening plant with the necessary reinforced concrete bunkers for storage. The ovens would be of Messrs. Jenkins' latest design complete with their patent bottom gas offtake water-sealed discharge doors.

STOCK AND SHARE LIST.

Official Quotations on the London and Provincial Stock Exchanges.

Issue. £	Share.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations. May 12. (Provincial Exchanges May 11.)	Rise or Fall on Week.	Transactions. Lowest and Highest Prices During the Week.
1,551,868	Stk.	Apl. 9	7	7	Alliance & Dublin Ord. ...	128–138	...	...
374,000	"	Jan. 8	4	4	Do. 4 p c Deb. ...	90–100	...	...
557,655	"	Mar. 5	7	7	Barnet Ord 7 p.c.	165–170	...	...
300,000	1	May 7	1/4⅕	1/9⅖	Bombay, Ltd	26/6–28/6*	–/6	...
178,480	Stk.	Feb. 19	9½	9½	Bournemouth sliding scale	203–208	...	...
550,050	"	"	7	7	Do. 7 p.c. max. ...	162–167	...	...
439,160	"	"	6	6	Do. 6 p.c. Pref. ...	142–147	...	144
50,000	"	Dec. 18	3	3	Do. 3 p.c. Deb. ...	79–84	...	...
262,025	"	"	4	4	Do. 4 p.c. Deb. ...	103–107	...	...
335,000	"	"	5	5	Do. 5 p.c Deb. ...	121–126	+1	125–126
357,900	"	Mar. 5	7½	7½	Brighton, &c., 6 p.c. Con. ...	161–166	...	...
540,000	"	"	6⅔	6⅔	Do. 5 p.c. Con. ...	150–155	+1	151½–154½
195,500	"	"	6	6	Do. 6 p.c. B. Pref.	140–145	+5	142½–143½
1,487,500	"	Mar. 5	5	5	Bristol 5 p.c. max.	115½–116½*a*	...	...
120,420	"	Dec. 18	4	4	Do. 1st 4 p.c. Deb. ...	104–106*a*	...	...
217,870	"	"	4	4	Do. 2nd 4 p.c. Deb. ...	104–106*a*	...	...
328,790	"	"	5	5	Do. 5 p.c. Deb.	123–125*a*	...	...
885,000	"	Apl. 9	7	8	British Ord.	158–158	...	...
100,000	"	Dec. 18	7	7	Do. 7 p.c. Pref.	158–158	...	...
350,000	"	"	5½	5½	Do. 5½ p.c. Pref.	106–111	...	...
120,000	"	"	4	4	Do. 4 p.c. Red. Deb. ...	97–102	...	99–101½
450,000	"	"	5	5	Do. 5 p.c. Red. Deb. ...	109–114	...	...
160,000	"	Jan. 8	5	5	Cambridge 5 p.c. Deb. ...	115–120	...	...
100,000	10	22 May '33	6	4	Cape Town, Ltd.	1⅛–8¼	–⅛	...
100,000	10	Nov 6	4½	4½	Do. 4½ p.c. Pref. ...	5–7	–½	...
150,000	Stk.	Dec. 18	4½	4½	Do. 4½ p.c. Deb. ...	95–100	...	...
636,860	"	Feb. 19	6	6	Cardiff Con. Ord.	128–133	+2	128
237,860	"	Jan. 8	5	5	Do. 5 p.c. Red. Deb.	103–108	...	...
157,150	"	Feb 19	5	6½	Chester 5 p.c. Ord.	112½–122½*b*	...	...
98,996	1	May 7	2/-	2/-	Colombo, Ltd. Ord.	1⅞–1⅞*	...	...
24,500	1	"	1/4⅜	1/4⅜	Do. 7 p.c. Pref. ...	18/6–20/6*	–/6	...
609,204	1	Mar. 19	/11'48	/11'48	Colonial Gas Assn. Ltd. Ord.	1–1⅛	+⅛	21/1⅜–21/3
296,053	1	"	1/3'30	1/3'30	Do. 8 p.c. Pref.	23/6–25/6	+1/-	24/10½ · 25/1½
1,775,005	Stk.	Feb. 19	5	6½	Commercial Ord.	120–125	...	120½–122
475,000	"	Dec. 18	3	3	Do. 3 p.c. Deb. ...	77–82	...	...
286,344	"	Mar. 5	5	5	Do. 5 p.c. Deb. ...	119–124	...	...
807,560	"	Feb 19	7	7	Croydon sliding scale ...	153–158	...	...
569,590	"	"	5	5	Do. max. div.	105–110	...	...
620,385	"	Jan. 8	5	5	Do. 5 p.c. Deb.... ...	121–126	...	...
542,270	"	Mar. 5	7	10	Derby Con.	175–180*c*	...	...
55,000	"	Jan. 8	4	4	Do. 4 p.c. Deb.	98–100*c*	...	...
209,000	"	Feb. 19	5	5	East Hull Ord. 5 p.c. ...	106–111	...	109
181,625	"	Mar. 5	6	6	East Surrey Ord. 5 p.c. ...	126–131	...	...
175,609	"	Dec. 18	5	5	Do. 5 p.c. Deb. ...	118–123	...	...
1,002,180	"	Apl 9	15	17	European, Ltd.	122–127	...	122–126
19,342,763		Feb 19	5⅜	5⅜	Gas Light & Coke 4 p.c. Ord.	26/9–27/8*f*	+ /3	26/7½–27/3
2,600,000		"	3½	3½	Do. 3½ p.c. max.	87–90	...	87–87½
4,477,106		"	4	4	Do. 4 p.c. Con. Pref. ...	103–106	...	104½–105½
6,102,497		Dec. 18	3	3	Do. 3 p.c. Con. Deb. ...	85–88	+1	86–87
2,642,770		"	5	5	Do. 5 p.c. Red. Deb. ...	116–119	...	118½–119
3,500,000		"	4½	4½	Do. 4½ p.c. Red. Deb. ...	114–117	...	115½–116½
270,466		Mar. 5	6	6	Harrogate New Cons. ...	125–130	...	...
82,500		Mar. 5	7	7	Hastings & St. L. 5 p.c. Conv.	147–152	...	...
258,740		"	5½	5½	Do. 3½ p.c. Conv.	115–120	...	...
140,000	1	Apl. 23	1/7½	1/7½	Hongkong & China, Ltd. ...	28/6–31/6*	...	...
213,200	Stk	Mar. 5	6	6	Hornsey Con. 3½ p.c. ...	128–133	...	...
5,600,000	"	Nov. 6	14	10	Imperial Continental Cap.	213–218	+6	210–216
223,130	"	Feb. 5	3½	3½	Do. 3½ p.c. Red. Deb.	89–94	...	90–91
235,242	"	Mar. 5	8½	8½	Lea Bridge 5 p.c. Ord. ...	169–174	...	...
2,167,410	"	Mar. 5	6	6	Liverpool 5 p.c. Ord. ...	130–132*b*	...	...
245,500	"	Dec. 18	5	5	Do 5 p c. Red. Pref. ...	101–111*b*	...	...
306,083	"	July 17	4	4	Do. 4 p.c. Deb. ...	101½–103½*b*	...	...
165,736	"	Feb. 19	8	10	Maidstone 5 p.c. Cap. ...	180–190	...	...
56,176	"	Jan. 8	3	3	Do. 3 p.c. Deb. ...	72–77	...	...
75,000	5	Dec. 4	†10	†10	Malta & Mediterranean ...	9–11	...	...
392,000	—	Apl. 3	5½	5½	Metropolitan (of Melbourne) 5½ p.c. Red. Deb.	96–101	...	...
231,978	Stk.	Feb. 19	5	5	M. S. Utility "C." Cons. ...	113–118	...	...
818,657	"	"	4	4	Do. 4 p.c. Cons. Pref.	95–100	...	...
360,075	"	Jan. 8	4	4	Do. 4 p.c. Deb. ...	100–105	...	...
148,955	"	"	5	†5	Do. 5 p.c. Deb. ...	117–122	...	...
675,000	"	21 May '31	16	6	Montevideo, Ltd.	60–70	...	65–65½
2,061,315	"	Mar. 5	5	5½	Newcastle & Gateshead Con.	25/3–25/9*d*	...	...
682,856	"	"	4	4	Do. 4 p.c. Pref. ...	99–101*d*	...	...
776,706	"	Jan. 8	3½	3½	Do. 3½ p.c. Deb. ...	92–93*d*	...	...
277,285	"	May 7	5	5	Do. 5 p.c. Deb. '43 ...	105–107*d**	...	...
274,000	"	Feb. 19	5	5	Newport (Mon.) 5 p.c. max.	106–108*a*	...	...
204,940	"	Mar. 19	7½	7½	North Middlesex 6 p.c. Con.	155–160	...	...
393,160	"	Feb. 5	5	5	Northampton 5 p.c. max. ...	99–104	...	...
300,000	"	May 7	†9	†7	Oriental, Ltd.	150–155*	...	...
316,617	"	Dec. 18	8	8	Plym'th & Stonehouse 5 p.c.	165–170	...	171
504,416	"	Feb. 19	8	8	Portsm'th Con Stk. 4 p.c. Std	168–173	...	172½
241,446	"	"	5	5	Do. 5 p.c. max. ...	105–110	...	...
114,000	"	Feb. 19	5	5	Preston 5 p.c. Pref.	103–108	...	...
686,312	"	Jan. 22	4	4	Primitiva 4 p.c. Rd. Db. 1911	87–92	...	...
389,813	"	Dec. 18	4	4	Do. 4 p.c. Cons. Deb.	88–93	...	...
150,000	10	Mar. 19	6	6	San Paulo 6 p.c. Pref. ...	7–8	...	...
1,736,968	Stk.	Mar. 19	6	6	Sheffield Cons.	134–136*e*	...	...
95,000	"	Jan. 8	4	4	Do. 4 p.c. Deb.	96–100*e*	...	...
133,201	"	Feb. 19	8½	5	Shrewsbury 5 p.c. Ord. ...	135–140	...	137½
90,000	10	June 12	15	14	South African	2½–4½	...	...
6,709,895	Stk.	Feb. 19	5	7	South Met. Ord.	130–133	–1	130–132
1,135,812	"	"	6	6	Do. 6 p.c. Irred. Pf.	140–145	+2	142–145
850,000	"	"	4	4	Do. 4 p.c. Irred. Pf.	102–106	...	104½–105
1,895,445	"	Jan. 8	3	3	Do. 3 p.c. Deb ...	84–87	...	86½–87
1 000,000	"	Jan. 22	5	5	Do 5 p.c. Red. Deb.	114–117	...	116½
209,820	"	Mar. 5	8½	8½	South Shields Con.	166–167*d*	...	...
1,543,795	"	Feb. 19	6	6	South Suburban Ord. 5 p.c.	130–133	...	130½
512,825	"	"	5	5	Do. 5 p.c. Pref.	117–122	...	...
300,000	"	"	—	4	Do. 4 p.c. Pref.	103–108	...	...
868,897	"	Dec. 18	5	5	Do. 5 p.c. Deb.	121–126	+1	124½
100,000	"	"	4	4	Do. 4 p.c. Deb.	103–108	...	...
647,740	"	Mar. 5	5	5	Southampt'n Ord. 5 p.c. max.	109–114	...	...
121,275	"	Dec. 18	4	4	Do 4 p.c. Deb.	100–105	...	...
350,000	"	Mar. 5	5½	5½	Swansea 5½ p.c. Red. Pref.	106–111	...	...
200,000	"	Dec. 18	6⅔	6⅔	Do. 6⅔ p.c. Red. Deb.	103–108	...	...
1,976,490	"	Mar. 5	6⅔	6⅔	Tottenham and District Ord.	148–153	...	151½–152
409,835	"	"	5½	5½	Do. 5½ p.c. Pref. ...	123–128	...	...
63,235	"	"	5	5	Do. 5 p.c. Pref. ...	112–117	...	...
199,005	"	Dec. 18	4	4	Do. 4 p.c. Deb. ...	97–102	...	...
85,701	"	Apl. 9	6	6	Tuscan, Ltd. 6 p c. Red. Db.	90–100	...	...
349,110	"	Mar. 5	7	7	Uxbridge, &c., 5 p.c. ...	150–155	...	...
88,330	"	"	5	5	Do. 5 p.c. Pref. ...	112–117	...	115½
1,322,220	"	Mar. 5	7	7	Wandsworth Consolidated	155–160	...	157–160
1,096,373	"	"	5	5	Do. 5 p.c. Pref.	119–124	...	...
1,317,964	"	Dec. 18	5	5	Do. 5 p.c. Deb.	122–127	...	...
158,400	"	Mar. 5	5	6*g*	Winchester W. & G. 5 p.c. Con.	115–120	...	...

Quotations at:—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f.*—The quotation is per £1 of stock. *g.*—Paid £3, including 10s. on account of back dividends. * Ex. div. † Paid free of income-tax. ‡ For year.

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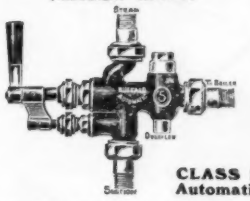

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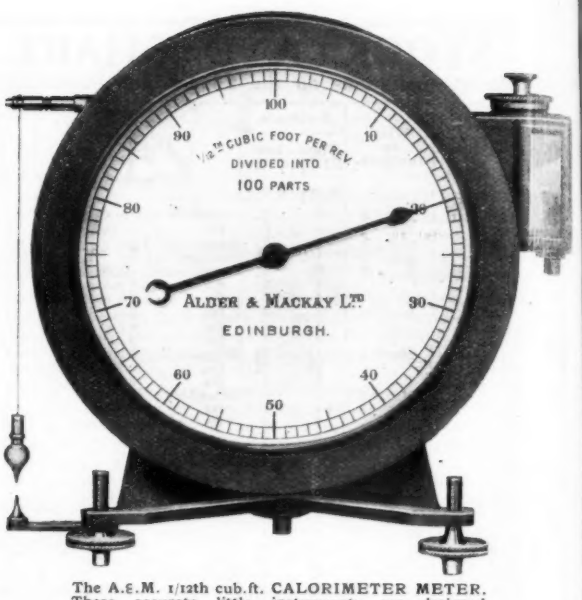

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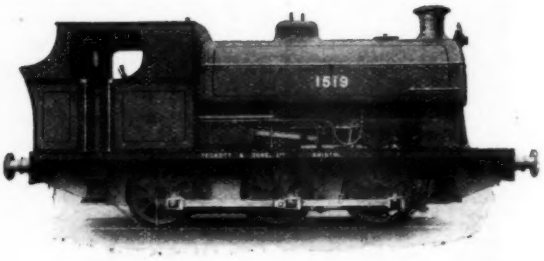

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